TOWARD A SYSTEMATIC METHOD OF EVALUATING FAVORABLE CONDITIONS IN A PARENT TRAINING PROGRAM: THE PURSUIT OF HAPPINESS

Jessica L. Broome, B.S.

Thesis Prepared for the Degree of

MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

August 2007

APPROVED:

Shahla Alai-Rosales, Major Professor
Cloyd Hyten, Committee Member
Jesus Rosales-Ruiz, Committee Member
Richard Smith, Chair of the Department of Behavior Analysis
Thomas L. Evenson, Intermim Dean of the College of Public Affairs and Community Service
Sandra L. Terrell, Dean of the Robert B. Toulouse School of Graduate Studies

Broome, Jessica L., Toward a systematic evaluation of evaluating favorable conditions in a parent training program: The pursuit of happiness. Master of Science (Behavior Analysis), August 2007, 85 pp., 5 tables, 4 figures, 6 appendices, references.

Research has shown that parents of children with disabilities, such as autism, experience significantly higher stress levels than parents of typically developing children. It has been suggested that parent education programs, in particular naturalistic communication training, will reduce parental stress. Most of the literature in this area has relied on parental reports and has only focused on decreasing stress and has not directly addressed increasing alternate feelings, such as happiness. In different but related areas of behavior analysis, an emphasis has been placed on the importance of happiness as a quality of life indicator and that the development of multileveled assessment is sorely needed.

This study was designed to analyze one set of measures within a data-based intervention program for parents of toddlers with autism. The Family Connections Project (FCP) is a parent training project designed to enhance the quality of relationships for families who have toddlers with autism. Within this project parents are taught to identify and arrange opportunities to interact with their children in ways that will increase motivation and social responsivity. This study looked at the collateral effects of this training program and investigated if FCP affected the relationship between parents and their toddlers; of particular interest was parental happiness. Video taped assessments were used as a direct measure to collect indices of parental affect/happiness (e.g., smiles). Independent judges' ratings were used in comparison with a controlled parent-child dyad. Furthermore, pre and post parental goals,

descriptions, and satisfaction surveys were analyzed in the context of the parental happiness indices. Results were evaluated in a multiple baseline design across child skills and are discussed in the context of parent and child's targeted behavior changes and collateral outcome measures.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my parents for always supporting me in my endeavors and offering me strength, love, encouragement, and never ending support. Thank you, Daniel Hinton for always pushing me to pursue my goal and assuring me that my research interests would add to science as well as to my understanding of life. Last but not least, thank you for all of your assistance with editing. Thank you to my advisor, friend, and mentor, Dr. Shahla Ala'i-Rosales, who has always given me support and guidance over the past three years, who has always pushed me to follow my heart, and taught me not only valuable lessons in academics, research, and work but has changed my overall view of life. Thank you for your patience, great conversations and contributions throughout this process. Thank you to Dr. Jesus-Rosales-Ruiz for supporting my research interests and for providing me with guidance while completing my thesis. Thank you to Dr. Cloyd Hyten for sitting on my committee and providing me with great conversations and future research topics to pursue. Thank you Shahla, Jesus, and Cloyd for sitting on my thesis committee, I have learned a great deal from all of you over the years. Last but not least, thank you Kate Laino for all of you assistance and support during this process and for being a wonderful colleague and friend. Thank you to Shane Isley for always making sure I could argue my point and supporting me throughout this quest as well as making me see both sides of the argument. I have learned so much from the two of you and could not have accomplished this without your support and friendship.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

INTRODUCTION

Over the past 20 years, a growing body of research has focused on increasing quality of life for individuals with developmental delays and their families (e.g., Porterfield, Blunden, & Blewitt, 1980; Reid et al., 1991; Baker, Landen, & Kashima, 1991; Green & Reid, 1996; Green, Gardner, & Reid, 1997; Logan et al., 1998; Turnbull & Turnbull, 2002). Within this literature, there is a slow trend towards identifying indices of happiness and studying the relationship between happiness and quality of life. The Merriam-Webster Dictionary (1997) defines happiness as, “a state of well-being and contentment; a pleasurable satisfaction” (p.341). Many have pondered on the pursuit of happiness as it relates to individuals and society: Philosophers (eg., Aristotle, Plato, Socrates, Epicurus, Botton, Rousseau, Meltzer); religious leaders (eg., King James, Dalai Lama, Pope John Paul II,); social leaders (eg., T. Roosevelt, E.Roosevelt, Lincoln, Churchill, Lord Layard); and scientists (e.g., Green, Reid, Russell, Maslow, Gilbert, Veenhoven, Angner, Wikinson, Nettle, Haidt). For example, in *The Art of Happiness,* (1998) the Dalai Lama suggests that “The purpose of our existence is to seek happiness,” (p.270) and in *The Nicomachean Ethics*, (1953) Aristotle states, “Happiness is the meaning and the purpose of life, the whole aim and end of human existence” (p.18). Even the Declaration of Independence acknowledges the role of happiness in our existence, “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with, certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness” (Declaration of Independence, 1776). According to The World Health Organization, (2005) and The United Nations, (1997) these rights are also echoed on a global level.

Although humankind has valued the pursuit of happiness for millennia, it has only recently become the subject of inquiry in behavior analysis. One of the initial experimental analyses was conducted by Green and Reid in 1996, and since that time, a series of studies have explored methods to define, measure and produce happiness (e.g., Favell, Realon, & Sutton, 1996; Green, Gardner, & Reid, 1997; Ivancic et al., 1997; Logan et al., 1998; Green & Reid, 1999a; Green & Reid, 1999b; Lancioni, O'Reilly, Singh, et al., 2002; Lancioni, O'Reilly, Singh, Campodonico, et al., 2002; Realon et al., 2002; Yu et al., 2002; Lancioni, O'Reilly, et al., 2003; Davis et al., 2004; Lancioni, O'Reilly, Singh, Oliva, et al., 2004; Lancioni, Singh, O'Reilly, Oliva, et al., 2004; Singh et al., 2004; Green et al., 2005).

Happiness and People with Developmental Disabilities

Increasingly, our society has recognized that citizens with disabilities should be offered the same rights to happy lives as are other citizens of the world (Turnbull & Turnbull, 2004). It follows that addressing happiness is important for the field of applied behavior analysis and could be considered an integral component of intervention, research and treatment. It has been noted that "The lack of research on happiness and related variables has resulted in pointed criticism of the field of behavior analysis and modification for not focusing on important indicators of quality of life among people with severe disabilities" (Meyer & Evans, 1993) as cited in Green & Reid, 1999a. Measures of happiness can aid behavior analysts with programming (e.g., Dillon & Carr, 2007) can assist in rapport building (e.g., McLaughlin & Carr, 2005) and can indicate preferences for the client (e.g., Green & Reid, 1996; Favell, Realon, & Sutton, 1996; Ivancic et al.,

1997; Green, Garner, & Reid, 1997). Measures of happiness may facilitate person centered programming, allow us to choose more desirable programs for our clients that are based on direct observation of their behavior (e.g., Green & Reid, 1999; Dillon & Carr, 2007) increase overall quality of life (e.g., Reid et al., 1991) assist in monitoring the development of social interactions (e.g., Favell, Realon, & Sutton, 1996; Logan et al., 1998) and, as some research (e.g., Cooke & Apolloni, 1976) and common sense suggest, happiness is contagious. Happiness appears to be very important to people with developmental disabilities.

Behavior analysts have expressed interest in the experimental analysis of affective goals such as love and joy and have suggested that such analyses would be likely to contribute greatly to our understanding (e.g., Cooke & Apolloni, 1976; Homme, 1970; O'Leary & O'Leary, 1972). In fact, the central theme of "Social Validity: The Case for Subjective Measurement or How Applied Behavior Analysis is Finding Its Heart" (Wolf, 1978) was the importance of studying our most complex and valued human goals, such as happiness. Wolf stated, "If our objective was, as described in JABA, to do something of social importance, then we needed to develop better systems and measures for asking society whether we were accomplishing this objective," (p. 207) and, in conclusion, he elaborates:

> It seems that if we aspire to social importance, then we must develop systems that allow our consumers to provide us feedback about how our applications relate to their values, to their reinforcers. This is not a rejection of our heritage. Our use of subjective measures does not relate to internal causal variables. Instead, it is an attempt to assess the dimensions of complex reinforcers in socially acceptable and practical ways. (p. 213)

Wolf, however, recognized that quantifying constructs such as happiness is difficult. There is some agreement that our research involves a narrow focus on changes in referral target behaviors despite widespread theoretical support for and growing anecdotal information regarding collateral (positive) and side (negative) effects of treatments (e.g., Meyer & Janney, 1989;Voeltz & Evans, 1982; Carr, 2007). Measuring happiness may be one step towards broadening this narrow focus and an important additional outcome measure to assess effects of interventions.

Typically, happiness and satisfaction measures are assessed with many populations through self reports and rating scales (e.g., Chadsey-Rush et al., 1992; Felce & Perry, 1995; Favell, Realon, & Sutton, 1996). Self reports present several difficulties in terms of reliability and validity and are not feasible with nonverbal populations. Attempting to measure and directly observe behaviors that are private events (like happiness and unhappiness) is one of the greatest challenges people working with persons with profound disabilities face (e.g., Green & Reid, 1996; Sailor, Gee, Goetz, & Graham, 1988; Evans & Scott, 1989; Park et al., 2003). Green and Reid (1996) extended previous research that included ratings of positive and negative affect (e.g., Jordan, Singh, & Repp, 1989; Koegel, Bimbela, & Schreibman, 1996) and measures of specific behaviors that correlated to positive affect (e.g., Cooke & Apolloni, 1976; Lindauer, DeLeon, & Fisher, 1999) by developing a reliable and valid index of happiness:

> Happiness was defined as any facial expression or vocalization typically considered to be an indicator of happiness among people without disabilities including smiling, laughing, and yelling while smiling. Unhappiness was defined as any facial expression or vocalization typically considered to be an indicator of

> unhappiness among people without disabilities such as frowning, grimacing, crying, and yelling without smiling. (Green & Reid, 1996)

Several researchers have used the operationally defined indices of happiness and unhappiness as standard definitions, with some adaptations in order to tailor to specific participants. Most of the research that has measured happiness has been conducted with a limited range of populations. The population that has been studied the most has been adults with profound multiple disabilities that attended a center for people with developmental disabilities or lived in an institution. Researchers measured happiness by using the operationally defined indices of happiness and unhappiness developed by Green and Reid (1996) by directly observing participants during numerous daily activities for an average of 5 to 10 minutes during each session or activity and recorded behaviors during 10 to15 second partial intervals while staff gave the participants preferred and non preferred stimuli (e.g., Green & Reid, 1996; Green, Gardner, & Reid, 1997; Ivancic et al., 1997; Lancioni, O'Reilly, Singh, et al., 2002; Lancioni, Singh, O'Reilly, Campodonico, et al., 2005) measuring indices during leisure activities (e.g., Favell, Realon, & Sutton, 1996; Ivancic et al., 1997; Green & Reid, 1999; Singh et al., 2004) during programs (e.g., Favell, Realon, & Sutton, 1996; Ivancic et al., 1997; Lancioni, O'Reilly, Singh, et al., 2002; Lancioni, O'Reilly, Singh, Campodonic, et al., 2002; Realon et al., 2002; Lancioni, O'Reilly, et al., 2003; Singh et al., 2004; Green et al., 2005) during social interactions with staff (e.g., Favell, Realon, & Sutton, 1996; Logan et al., 1998) social interactions paired with preferred stimuli (e.g., Davis et al., 2004) regular classroom routines (e.g., Green & Reid, 1999) and during exercise routines (e.g., Green & Reid, 1999; Lancioni, Singh, et al., 2003; Lancioni, O'Reilly, Singh, Oliva, et al., 2004; Lancioni, O'Reilly, Singh, Campodonico, et al., 2004). Some

researchers took additional measures of happiness such as positive engagement (e.g., Porterfield, Blunden, & Blewitt, 1980; Lancioni, O'Reilly, Singh, Campodonico, et al., 2002; Realon et al., 2002).

Some of these studies assessed social validity. Green and Reid (1996) presented videotapes of sessions to teacher assistants and group-home managers, some who had experience with the participants and others who did not. The judges were asked to rate the videotapes using a 7-point Likert scale on levels of happiness for each participant. The participants that displayed higher indices of happiness were rated happier than the participants who displayed more indices of unhappiness and vice versa. The judges' ratings corresponded with the directly observed and recorded indices of happiness and unhappiness.

Producing Happiness

Most of the happiness research is in the context of preference assessments and leisure activities for individuals with profound multiple disabilities (e.g., Green & Reid, 1996, Green, Gardner, & Reid, 1997; Favell, Realon, & Sutton, 1996; Ivancic et al., 1997; Green & Reid, 1999; Lancioni, O'Reilly, Singh, et al., 2002; Singh et al., 2004; Lancioni, Singh, O'Reilly, Piazzolla, et al., 2005). Results from this research indicates that there is a relation between preferred stimuli and leisure activities to increased indices of happiness (e.g., Green & Reid, 1996, Green, Gardner, & Reid, 1997; Favell, Realon, & Sutton, 1996; Ivancic et al., 1997; Green & Reid, 1999; Lancioni, O'Reilly, Singh, et al., 2002; Singh et al., 2004; Lancioni, Singh, O'Reilly, Campodonico, et al., 2005). This research extends the previous studies identifying preferred events by

including affective behavior such as smiles as a dependent variable (e.g., Realon, Favell, & Phillips, 1989). Realon et al. (1989) investigated and measured the frequency of smiles and interactions with stimuli given to the participant to determine preferences.

For example, Ivancic et al. (1997) and Lancioni et al. (2002) evaluated the effects of staff selected preferred stimuli instead of stimuli selected by a systematic client preference assessment, and Green, Gardner, and Reid (1997) compared the effects of preferred stimuli chosen by caregivers and preferred stimuli identified through systematic preference assessments. The results suggested that stimuli used from the systematic preference assessments showed a higher increase of indices of happiness. Results of Davis et al. (2004) suggested that when a client was given social interaction paired with a preferred item instead of just one of the conditions indices of happiness increased. Favell, Realon, and Sutton (1996) used happiness indices as a tool to select leisure activities, as a collateral effect of 'positive environment program,' and showed that increased engagement time or opportunities to converse with staff lead to an increase in indices of happiness. Singh et al. (2004) evaluated the effects of mindfulness training (e.g., focusing on the moment) on happiness and showed that clients displayed higher indices of happiness when interacting with caregivers that received mindfulness training.

Multiple studies have shown that by increasing happiness indices for a client, indices of unhappiness decrease (e.g., Green & Reid, 1996; Green, Gardner, & Reid 1997; Ivancic et al., 1997; Lancioni, O'Reilly, Singh, Oliva, et al., 2004). Two studies have primarily focused on reducing indices of unhappiness. Green and Reid (1999b) implemented a program that consisted of four presentations of preferred stimuli: before

an exercise routine, at fixed intervals during the exercise routine, when the participants displayed unhappiness while exercising and immediately following the completion of the exercise routine. Results showed that all participants displayed fewer indices of unhappiness as a result of the program. Green, Reid, Rollyson, and Passante (2005) replicated the Green and Reid (1999b) program during various tasks to reduce participant resistance and indices of unhappiness. Decreases in resistance and indices of unhappiness for all three participants were observed. Not only have indices of happiness been used as a direct measure to increase happiness and/or decrease happiness but have been used as a tool to evaluate programs such as 'fun time' (Ivancic et al., 1997) and exercise programs (Lancioni, O'Reilly, Singh, Campodonico, et al., 2004).

In summary, indices of happiness have been used as an indicator of consumer satisfaction (e.g., Green & Reid, 1996; Lindauer et al., 1999; Lancioni, Singh, et al., 2003; Lancioni, Singh, O'Reilly, Campodonico, et al., 2004; Lancioni, O'Reilly, Singh, Campodonic, et al., 2004; Lancioni, Singh, O'Reilly, Campodonico, et al., 2005; Lancioni, Singh, O'Reilly, Piazzolla, et al., 2005) an aid in identifying preferences and leisure activities (e.g., Logan et al., 1998; Green & Reid, 1999a; Lancioni, O'Reilly, Singh, et al., 2002; Yu et al., 2002; Lancioni, O'Reilly, et al., 2003) to evaluate the preference of the type and location of work activities (e.g., Reid, Green, & Parsons, 1998; Parsons, Reid, & Green, 2001) an additional measure of engagement and interactions with caregivers and typically developing peers (e.g., Logan et al., 1998; Singh et al., 2004) as a moment by moment quality of life indicator (e.g., Green,

Gardner, & Reid, 1997) and a measure to assess social validity (e.g., Green & Reid, 1996).

Happiness and Autism

Although several studies have included ratings of affect (e.g., Realon, Favell, & Phillips 1989; Jordan, Singh, & Repp, 1989; Koegel, Bimbela, & Schreibman, 1996), happiness indices have not been included in research in the behavioral treatment of autism. It would seem important to extend measures to this population. In the past, parents of children with autism were blamed for their child's disability and not included in the treatment process (e.g., Schreibman, Koegel, Mills, & Burke, 1984: Lovaas, 1987; Marcus, Kunce, & Schopler, 2005). Recently, research has indicated that parents can play a very influential and key role in the effective treatment for their children (e.g., Marcus, Kunce, & Schopler, 2005).

Research indicates that parental stress levels are higher in parents of children with developmental disabilities such as autism (e.g., Koegel et. al., 1992; Hastings, & Johnson, 2001; Tomanik, Harris, & Hawkins, 2004; Baker-Ericzen, Brookman-Frazee, & Stahmer, 2005). However, there have been studies that show a decrease in parental stress and increases in self-efficacy which are thought to be a result of improved child progress (e.g., Phenis, Robbin, & Dunlap, 1988; Robbins, Dunlap, & Plienis, 1991; Koegel, Bimbela, & Schreibman, 1996; Feldman, & Werner, 2002). Studies have also highlighted the importance of parent training programs to enhance both child and parent skills. Parent training programs have shown many positive effects for the child and family (Brookman-Frazee, 2004). In fact, it appears that learning naturalistic teaching

strategies will decrease parental reports of stress (Koegel, Bimbela, & Schreibman, 1996*).* Not only do parent training programs have a positive effect in target behavior changes, they may also have correlated increases in positive affect (Koegel, Bimbela, & Schreibman, 1996).

The goal of the present study is to investigate the collateral effects (i.e., indices of happiness) of a parent training program, The Family Connections Project (FCP), for parents and their toddlers with autism. The Family Connections Project is a parent training program designed to enhance the quality of relationships in families who have toddlers with autism. Within FCP, parents are taught to identify and arrange opportunities to interact with their children in ways that will increase motivation and social responsivity. By teaching parents to arrange motivating conditions, children are able to learn increasingly complex skills throughout everyday family routines and activities. FCP aims to enhance the quality of life for the child and the family as a whole. The purpose of this study is to look at the overall effects of this parent training program within the context of parent and child ‘happiness’ and ‘unhappiness.’

METHODS

Participants

The intervention participants were a 25-month-old male (Daniel), diagnosed with autism and his 32-year-old mother (Katie). Daniel was diagnosed with pervasive developmental disorder not otherwise specified (PDD-NOS) according to direct observation conducted by his pediatrician at 23 months of age and diagnosed with ASD (autism spectrum disorder) by a pediatric neurologist at 24 months of age. Daniel was not taking any medication or receiving any other type of therapy during this study; he was considered a healthy child. Daniel lives with his mother and father. The mother, Katie, is a high school graduate and attended college. Katie is a full time homemaker. Daniel and Katie attended parent training sessions through the Family Connections Project (FCP) 2-3 hours each week during the 10 week program.

The comparison participants were a 25 year old mother (Shelia) and her 18 month old neuro-typical (NTD) son (Patrick). Shelia and Patrick lived in a rural town in Texas. Shelia attended the University of North Texas two days a week and Patrick attended a local day care five days a week.

The social validity participants were a family that included a 31 year old single male, his 55 year old mother, and his 59 year old father. They were recruited by the experimenter through family and friend contacts. The participants were blind to the intervention procedures and experimental conditions and were unfamiliar with autism and applied behavior analysis. The two male participants were rarely around toddlers, and the female participant reported to have passing contact with toddlers once per week at church.

Setting and Materials

Intervention Setting & Materials

Daniel and Katie, the intervention participants, attended sessions two times a week at the University of North Texas in the Family Connections Project's lab between the hours of 9:00 A.M. and 11:00 A.M. The lab, a 12.4 ft. by 8.8 ft. playroom was decorated with a large colorful carpet, a variety of pillows and child size furniture. The lab was designed to create a more natural, comfortable, and inviting environment for the mother and child. The playroom contained multiple toddler toys, pillows, blankets, snacks, a small child size table and chairs, and a large cabinet filled with toys. There were shelves located on two walls of the room where toys and materials were displayed. There was a 4.8 ft. by 3.9 ft. two-way mirror used for observation purposes located in the playroom. Shelia and Patrick, the comparison dyad, attended a play session and were filmed in this same room with the same materials.

Materials used throughout the study were toddler toys, an 8mm Sony Mini DV Handycam digital video camera, Sony 60 minute cassette tapes, lap top computers, timers, data sheets, and pencils. The digital video camera was used to tape all assessment sessions. The lap top computers, timers and data sheets were used by graduate students to record data on each 10 minute video taped assessment session. All graduate students involved in the study were females between 22 and 26 years of age from the Department of Behavior Analysis at the University of North Texas.

Social Validity Setting and Materials

Three judges were shown four video clips: two video clips of the intervention participants, Katie and Daniel that included one clip of a baseline session and one clip of an intervention session, and two clips of the comparison participants, Shelia and Patrick, that included one clip with one set of clothing and another clip with a different set of clothing. Shelia and Patrick changed clothing in order to be comparable with the Katie and Daniel's intervention clips that occurred on two different days. The video clips were viewed in the judges' home in a rural town located several hundred miles away from the town where the university lab was located. The video clips were shown on a 26 inch Magnavox television located in each participant's living room. Materials used while the judges reviewed the video clips were a one page judge's survey with a rating scale and pencils.

Measurement

Several parent and child behaviors were recorded using both event and interval recording. Measures recorded included parent and child intervention goals and other collateral measures. Data on parent and child behaviors was recorded by eight female graduate students between the ages of 22 and 26. Each data collector was given an observation code which contained definitions for the behaviors recorded and then trained to record the data. During training, the data collectors watched video clips with the FCP parent trainer and reviewed examples and non-examples of each behavioral definition. After the data collectors were trained, they recorded data on all baseline and intervention assessment sessions by watching the 10 minute video clips on a lap top

computer and used corresponding data sheets to record the data. This was part of an ongoing research project (Ala'i-Rosales, Laino, Broome, Besner, Ruiz-Rosales, et. al., 2007, in preparation).

Parent measures recorded included the parent's intervention goals: arranging learning opportunities, responsive model delivery, responsive event delivery, and expansion delivery; other collateral measures recorded for Katie were happiness indices, which included smiles (adapted from previous research, Green & Reid (1996)), eyebrow raises, grimaces, and smirks. Child measures recorded included Daniel's intervention goals: gestural requests, communicative attending, and vocal requests, other collateral measures recorded were smiles and tantrums, (adapted from previous research, Green & Reid (1996)), cooperative play and solitary play. The complete FCP observation code for all behaviors measured is included in Appendix A.

The experimenter also counted and scored each of the four video clips rated by the three judges. Behaviors scored for the parents were smiles, grimaces, smirks, and lip/cheek biting. Behaviors scored for the child were smiles and tantrums. These are included in Appendix A.

Interobserver Agreement

Interobserver agreement was calculated for 30% of each intervention condition. Conditions included three 10 minute baseline sessions and seventeen 10 minute intervention sessions. Thirty percent of the observations in each condition, baseline phase, and intervention phase were taken. Interobserver agreement was calculated for each parent and child behavior that was recorded. Interobserver agreement was

calculated for event recording by dividing the smaller number of recorded instances of the behavior by the larger number of recorded instances and then multiplied by 100. The formula used was agreements/disagreements multiplied by 100. For interval recording, interobserver agreement was calculated for occurrence and nonoccurrence of the behaviors. The formula used for interval recording was agreements/agreements plus disagreements multiplied by 100. An IOA table is included in Appendix B.

Parent Survey

Before and after intervention, Katie, the intervention parent, completed a one page open ended survey that asked questions about the level of stressfulness and happiness she and her family experienced during typical routines and activities. The parent survey is included in Appendix C.

Judges' Ratings

Video tapes of Daniel and Katie, the intervention participants, and video tapes of Patrick, the neuro-typical child, with Shelia, his parent, interacting in the FCP playroom, were developed for the three judges to compare and rate. A one page survey was developed for judges to rate measures of Favorable Conditions (e.g., happiness, interests, engagement) and Unfavorable Conditions (e.g., unhappiness, boredom, lack of interest) of Katie and Daniel and of Patrick and Shelia during the four video clips. Shelia and Patrick served as a controlled parent and child dyad comparison for the study. The judges' survey is included in Appendix D.

Four 5 minute videotaped clips were used for the social validity measures. Two videotaped clips of the control parent child dyad, (18 month neuro-typical male, Patrick and his 24 year old mother, Shelia) and two video tapes of the (intervention participants) Daniel a 25 month male diagnosed with autism and his 32 year old mother, Katie were viewed by the judges. The two video tapes of Patrick and Shelia were recorded on the same day, but both the parent and the child changed clothes so the judges would be unaware that the clips were taken on the same day. A baseline clip and an intervention clip of Daniel and Katie were randomly chosen from the three clips during the baseline condition and the 17 clips during the intervention condition. The four video clips were shown to the judges in this order: (1) neuro-typical child and mother, (2) baseline clip of the parent and child that participated in the study, (3) neuro-typical child and mother, (4) an intervention clip of the parent and child that participated in the study. The clips were presented in this random order to minimize bias (e.g., Lutzker et. al. 1985; Quinn, Sherman, Sheldon, Quinn, & Harchik, 1992; Green & Reid, 1996*)*. The experimenter showed the two clips of Patrick and Shelia in comparison to the two clips of Daniel and Katie in the same conditions and setting so the judges would be more likely to rate the clips with unbiased responses. The only difference between Patrick and Shelia's clips and Daniel and Katie's clips were the behaviors the participants exhibited, other variables were controlled. Three judges that were unfamiliar with autism and toddlers were solicited to watch the video clips. Social validity measures were recorded from four one page surveys completed by each judge. The survey consisted of ratings of 12 child behaviors and 17 parent behaviors. A 7-point Likert scale was used to obtain ratings of the child and parents' Favorable Conditions (e.g., happiness, interests, engagement)

and Unfavorable Conditions (e.g., unhappiness, boredom, lack of interest) during the video clips. The judges' survey is included in Appendix D.

Procedures

Intervention Phase

The two intervention participants (Katie and Daniel) were involved in the Family Connections Project. The parent training package consisted of an intake interview, three baseline sessions, 17 intervention sessions, and a transitions meeting conducted in the FCP playroom. During the intake interview, Katie and Daniel came to the playroom and met with the parent trainer and supervisor to discuss goals for both Katie, the parent that attended the parent training sessions and Daniel, the child with autism. These goals were chosen based on the goals of the individual family and research based curriculum and literature for toddlers with autism (e.g., Hart & Risley, 1968; McGee et al., 1985; Koegel et al., 1987; Alpert & Kaiser, 1992; Noonan & McCormick, 1993).

The first three sessions were baseline sessions and involved assessment of the parent and child's skills. At the beginning of these sessions, the parent and child came into the FCP playroom and were observed and videotaped for 10 minutes. The parent trainer and data analyst established rapport with Katie and Daniel for the remainder of the sessions. The 17 intervention sessions consisted of 10 minute assessment sessions at the beginning of the session. Following the 10 minute assessment session, the parent trainer provided verbal instruction, modeled, and gave feedback to Katie. Katie was the primary change agent in the study. Katie used the skills taught by the parent

trainer to teach three specific skills to Daniel: gestural requests, communicative attending and vocal requests.

Baseline

Each of the three baseline sessions lasted for one hour. The session began with the parent trainer exiting to an observation booth and an observer recording a 10 minute video taped assessment of Katie and Daniel alone in the playroom. During the baseline sessions the parent could access all materials and toys located in the playroom. The parent was instructed to interact with her child in a manner typical to how they interacted in their natural environment. After the 10 minute assessment session, the parent trainer and data analyst came back into the playroom with the participants. The parent trainer did not give feedback to the parent about the assessment session during the baseline phase. The remainder of each baseline session was spent with the parent trainer and data analyst building rapport with the parent (e.g., identifying goals, concerns, learning interaction preferences, comfort, discomfort signals, and feedback preferences) and child (e.g., playing, identifying preferences, comfort, and discomfort signals). During rapport building, the parent trainer and data analyst interacted with Daniel and tried to find his preferred activities and talked with Katie. The FCP supervisor came in the playroom periodically to give feedback and talk with Katie. The IFSP is included in Appendix E.

Training

Following the three baseline assessment sessions there were 17 intervention

sessions that were approximately one hour long. There were three child intervention goals and four parent goals selected by the parent and intervention team. Each intervention session began with a 10 minute videotaped assessment similar to baseline. The parent trainer exited the playroom at the beginning of the assessment and after the 10 minute assessment the parent trainer and data analyst re-entered the playroom and gave instructions to Katie, modeled with Daniel, and gave feedback to Katie, teaching her teaching strategies derived from the behavior analytic literature for teaching young children with autism (e.g., Hart & Risley, 1968; McGee et al., 1985; Koegel et al., 1987; Alpert & Kaiser, 1992; Noonan & McCormick, 1993). A summary of the key teaching strategies FCP taught Katie are in Appendix F. Data from the 10 minute assessment sessions were graphed, and decisions about treatment were based on this data and direct observation.

A multiple baseline across child skills was used for both parent and child behaviors to evaluate the effectiveness of the parent training program.

Social Validity Phase

Three judges were asked to rate indices of happiness and unhappiness on four 5 minute video clips, two clips of Patrick, the neuro-typical child and Shelia, his mother, one baseline clip of Daniel, the child with autism spectrum disorder and Katie, his mother and one clip of Daniel and Katie during intervention.

The judges were given instructions to watch each 5 minute video clip then, independently and immediately following each clip, rate the child and parents' Favorable Conditions and Unfavorable Conditions using the survey. The judges rated if the child

was (a) interested, (b) bored, (c) happy, (d) unhappy, (e) frustrated, (f) stressed, (g) calm, (h) confused, (i) focused, (j) attached to his mom, (k) enjoyed the toys, and (l) bored with the toys. The judges rated if the parent was (a) interested, (b) bored, (c) happy, (d) unhappy, (e) stressed, (f) calm, (g) frustrated, (h) confused, (i) focused, (j) attached to her child, (k) avoiding her child, (l) encouraging, (m) discouraging, (n) nagging, (o) supportive, (p) optimistic, and (q) pessimistic. Questions were devised on a 7 point Likert scale ranging from yes (7) to no (1), 'not sure' and 'not applicable' options were included for each question. The experimenter took notes of the judges' verbal behavior after they completed the rating scales.

Experimental Design

Experimental controls were employed throughout the study. Video clips from the neuro-typical child, Patrick, and his mother, Shelia, were used as a control in comparison with clips from Daniel, the child with autism spectrum disorder and Katie, his mother. Other variables held constant to reduce internal threats to validity included: identical assessment samples in terms of setting, materials, instructions, changes in clothing, duration of videotaped assessments, and the session length. A multiple baseline across child skills was employed to evaluate the effects of the intervention package.

RESULTS

Figure 1 presents the targeted intervention behavior changes of the FCP parent training program. The top graph displays Parent Goal Responses, the middle graph displays Child Goal Responses and the bottom graph displays the Social Interactions between the parent and child. Along the abscissas of each graph is the number of consecutive 10 minute assessment sessions. The y-ordinate for the top two graphs (Parent Goal Responses and Child Goal Responses) displays the number of occurrences of each behavior. The y-ordinate for the third graph (Social Interactions) displays the number of 10 second intervals in which the behavior occurred in. The first three sessions are baseline sessions and the following 17 sessions are intervention sessions. For Parent Goal Responses and Child Goal Responses during the three baseline sessions there is very low responding. Following intervention phase 1 (Child Gestural Requests), there is an increase in responding for three of the four Parent Response Goals, and the fourth goal Expansion Delivery remains low (occurrences between 0-4) during intervention phase 1. Two of the three Child Goal Reponses (Gestural Requests and Communicative Attending) display a rapid increase while the third goal response (Vocal Requests) remains low (occurrences between 0-5). During the second intervention phase (Child Communicative Attending) introduced on the 7th intervention session, there is a decrease in Parent Goal Reponses (Arranging Learning Opportunities, Responsive Model Delivery, Responsive Event Delivery) and Child Goal Responses (Gestural Requests and Communicative Attending) on the 8th intervention session. The Parent Goal Response (Expansion Delivery) and Child Goal Response (Vocal Requests) still remain low. Following the 8th intervention session, all Parent and

Child Goals, with the exception of the Child Goal Response, Vocal Requests increase with some bounce for the remainder of the second intervention phase. The third intervention phase (Child Vocal Requests) was introduced on the 13th intervention session. Following this intervention phase, all other goal responses for Katie and Daniel decreased then increased but remained above baseline levels until the last intervention session. The targeted Child Goal Response (Vocal Requests) displayed an increase following intervention until the 17th intervention session (Family Variable) but remained above baseline levels throughout the third intervention phase. Following the 17th intervention session we learned that a distressing event had occurred in the family, which produced great stress for the mother.

Social Interactions are displayed in the bottom graph of Figure 1. Cooperative Play was below 10 occurrences during the three baseline sessions. It then increased with some variability but remained higher than baseline levels on all but 2 of the 20 intervention sessions. Following the 17th intervention session, Cooperative Play decreases. Solitary Play increased during the third baseline session and then began to decrease during intervention phase 1. There is some variability throughout the data path and the increases typically follow the implementation of intervention goals. During intervention phase 3 (Vocal Requests), Solitary Play occurs more frequently then decreases again below baseline levels for the remainder of the intervention.

Figure 2 displays collateral indices of happiness and unhappiness for Katie and Daniel. Along the abscissa of each graph, the number of 10 minute consecutive assessment sessions is displayed. The y-ordinate for each graph displays the number

of 10 second intervals the behavior occurred in. The first three sessions are baseline sessions and the following 17 sessions are intervention sessions.

Parent Happiness Indices is the top graph to the left and displays parent Smiles and Eyebrow Raises. During baseline sessions, excluding session one, Parent Smiles are barely occurring. Following intervention phase 1, there was a significant jump in Parent Smiles, then following intervention phase 2 (7th intervention session), there was a decrease in Parent Smiles for two sessions. Parent Smiles then increased rapidly and remained high until the 12th intervention session. There is a decrease in Parent Smiles for the first two sessions of the third intervention phase (Vocal Requests) then Parent Smiles jump back up until the 17th session (Family Change). Parent Smiles remained above baseline levels following the 1st intervention session. Though there is some variability for this data path, Parent Smiles are significantly higher during intervention than baseline.

Parent Eyebrow Raises are the second data path displayed in the Parent Happiness Indices Graph. Eyebrow Raises do not occur during baseline. Following baseline, there is a growing increase in Eyebrow Raises throughout intervention phases one and two. Eyebrow Raises start to decrease on the 14th intervention session which is the beginning of intervention phase 3 (Vocal Requests) then begin to increase after the 15th intervention session then decrease to baseline levels during the 17th session (Family Change) and remain low until the end of intervention.

Figure 2 displays Parent Unhappiness Indices (bottom left graph). Some indices of unhappiness are occurring during baseline. During intervention all indices remain below baseline levels except for Lip/cheek Biting which seems to increase slightly the

first day following each intervention phase. There is a slight increase of Grimaces and Lip/cheek Biting for the last four intervention sessions following the family change.

Figure 2 also displays Child Happiness Indices (top right graph) and Child Unhappiness Indices (bottom right graph). Smiles were chosen for Child Happiness Indices. Child Smiles were low during baseline (occurrence between 0 and 4) and increased but remained slightly variable until the third intervention phase, (Vocal Requests), which occurred on the14th session. Smiles then increased and then decreased again during the 16th and 17th intervention session then decreased during the last three intervention sessions.

Child Unhappiness Indices are displayed in Figure 2 (bottom right graph). The behavior chosen for indices of unhappiness was Tantrums. Tantrums began to decrease rapidly after the first baseline session, but then decreased only slightly for the next 3 intervention sessions. They remained low with a few peeks following the beginning of each intervention phase then dropped off and remained below baseline levels following the 15th intervention session. Overall, tantrums were observed to decrease throughout intervention.

Figure 3 displays the direct measures from the four clips viewed by the judges. The top four graphs display Katie and Shelia's indices of happiness and unhappiness, Parent Smiles, Grimaces, Smirks, and Lip/cheek Biting. The bottom two graphs show Daniel and Patrick's indices of happiness and unhappiness, Smiles and Tantrums. Along the y-ordinate is the number of 10 second intervals in which the behavior could have occurred. Along the abscissa is ASD (for Katie and Daniel) and NTD (for Shelia and Patrick). Overall, Katie's indices of happiness increased significantly, Shelia's

increased slightly. Katie's indices of unhappiness decreased while Shelia's was somewhat variable. Overall, Daniel's indices of happiness increased drastically and his indices of unhappiness decreased greatly. Patrick's indices of happiness and unhappiness increased slightly.

Figure 4 displays the Averaged Judges' Ratings of Daniel's Favorable and Unfavorable Conditions, Katie's Favorable and Unfavorable Conditions and the averaged judges' ratings of Favorable and Unfavorable Conditions for the control parent child dyad, Shelia and Patrick. The figure displays the averaged ratings of the four 5 minute clips the three judges viewed and rated on the Judges Survey. The video clips viewed were one clip of baseline (labeled Pre-Intervention) and one clip of intervention (labeled Post-Intervention) for Katie and Daniel and two clips of Shelia and Patrick (labeled Tape 1 and Tape 2) taken on the same day. Along the abscissa of Daniel and Katie's graphs (labeled ASD) is Pre-Intervention (the video judges viewed of a baseline clip) and Post-Intervention (the video the judges viewed of an intervention clip). Along the abscissa of Shelia and Patrick's graphs (labeled NTD) is Tape 1 and Tape 2. The y-ordinate displays the rating scale the judges used to rate the parent and child's behavior ranging from 7 to 0. Questions were devised on a 7 point Likert scale ranging from yes (7) to no (1) 'not sure' and 'not applicable' options were included for each question. The specific questions included in this averaging are in Appendix D. The behaviors were averaged for each judge.

The top left graph displays Daniel's Favorable conditions before and during intervention. All three judges rated Daniel's Favorable Conditions higher during Post-Intervention. Judge 2 rated his Favorable Conditions significantly higher during Post-

Intervention. Ratings ranged from 1 to 7 during Pre-Intervention. There was no range during Post-Intervention; Judge 2 rated all Favorable Conditions as 7 (yes).

The 2nd graph to the left on Figure 4 displays Patrick's (NTD) averaged Favorable Conditions for all three judges. Ratings were consistent between Tape 1 and Tape 2 athough Judge 1 rated Patrick's Favorable Conditions slightly higher for Tape 2.

The top graph on the right displays Daniel's averaged Unfavorable Conditions for the three judges. Judge one's ratings ranged between 1 and 5 for Pre-Intervention and 1 and 4 for Post-Intervention, however, there was a slight decrease in Unfavorable Conditions for Post-Intervention. Judge 2 rated Daniel's Unfavorable Conditions considerably lower for Post-Intervention. The ratings ranged from 1 to 5 during Pre-Intervention and were all rated 0 for Post-Intervention. Judge 3 also rated Daniel's Unfavorable Conditions lower for Post-Intervention; ratings ranged between 1 and 7 for Pre-Intervention and 1 and 4 during Post-Intervention. Overall, all three judges agreed that Daniel's Unfavorable Conditions decreased after intervention.

The bottom four graphs of Figure 4 display Katie (ASD) and Shelia's (NTD) Favorable and Unfavorable Conditions. The top graph on the left (labeled ASD) displays Katie's averaged Favorable Conditions for each judge for the Pre-Intervention clip and the Post-Intervention clip. Favorable Conditions were rated high for both clips though the range of ratings was higher for the Post-Intervention clip. The bottom graph on the left (labeled NTD) displays Shelia's Favorable Conditions. The averaged ratings were somewhat consistent for Tape 1 and Tape 2 even though the ranges did vary.

The top graph to the left displays Katie's Unfavorable Conditions, the range of ratings decreased for Post-Intervention. Altogether, the judges rated Katie's

Unfavorable Conditions slightly lower for Post-Intervention. The comparison parent's (Shelia) averaged ratings for Unfavorable Conditions are displayed in Figure 4 (bottom right graph). The judges rated her Unfavorable Conditions slightly higher for Tape 2. Appendix G displays the three judges' background and experience with toddlers and autism.

Table 1 through 4 displays the judges' ratings for Child Favorable and Unfavorable Conditions for Daniel and Patrick and Parent Favorable and Unfavorable Conditions for Katie and Shelia. Each table displays the questions the judges were asked on the Judges Survey and lists the individual scores given by each judge for each question across the four clips. Under the Change column, the experimenter has listed whether the judges rated the behavior as better or worse or if there was no change. Overall, judges rated several areas as better for Daniel, the child with autism, from pre to post. This was not as frequent with Patrick, the NTD child.

Table 1 displays the judges' ratings for Daniel and Patrick's Favorable Conditions. As one can see, in general, all three judges showed Daniel's Favorable Conditions changed for the better after intervention. Judge 1 showed three out of six of Patrick's Favorable Conditions to have improved. Overall, Patrick's Favorable Conditions stayed consistent.

Table 2 displays the judges' ratings for Daniel and Patrick's Unfavorable Conditions. There was a much higher rate of change in Daniel's Unfavorable Conditions than Patrick's. The judges rated that Daniel's Unfavorable Conditions improved after intervention.

Table 3 displays the judges' ratings for Katie and Shelia's Favorable Conditions. Although the change was minimal, all three judges rated Katie's Favorable Conditions better after intervention. There was less change in Shelia's Favorable Conditions.

Table 4 displays the judges' ratings for Katie and Shelia's Unfavorable Conditions. Judge 1 rated both Katie's Unfavorable Conditions better after Post-Intervention and rated Shelia's slightly better for Tape 2. Judge 2 rated Katie as showing improvement. Judge 3 rated both Katie and Shelia's Unfavorable Conditions improved slightly.

Table 5 displays the results of the parental survey given to Katie before and after intervention. Only the responses from those questions related to happiness and stress are included. Generally, there may have been some improvement, but in both cases, the parent reported happiness and stressors. The parent's complete responses are included in Appendix H.

DISCUSSION

The initial study by Green & Reid (1996) and the studies that followed developed measures of happiness and unhappiness indices, tested them, made them reliable, valid, sensitive to change, and time efficient. The current study employed those measures. This study also took Evans and Scotti's (1989) advice and focused on the assessment of collateral and outcome measures rather than the target behaviors alone. This study assessed indices of happiness and unhappiness for the participant's enrolled in The Family Connections Project. There was no direct intervention in place to increase or decrease indices of happiness and unhappiness. These measures were taken to identify the collateral effects of the parent training program.

Summary of Findings

The first important finding in the current study was the increase in the targeted goal responses for the parent (Katie) and child (Daniel) during the parent training program. Katie successfully learned the skills to Arrange Learning Opportunities for Daniel, give Responsive Models, Expansions and Deliver Events (reinforcers). The parent learned how to shape her child's behavior. As a result of the parent training program, Daniel began requesting through gestures, displaying communicative attending and began to vocally request items. This was a major improvement for Katie and Daniel. Before intervention, Daniel rarely displayed gestural requests and communicative attending and had no functional communication. Daniel did not vocally request or label any items before intervention began and, as a result of the intervention,

began to use functional communication. The collateral measures of happiness correlated with the favorable changes in parent and child responding.

A second important finding was the marked increase in indices of happiness for Katie and Daniel and the slight decrease in indices of unhappiness for Katie. There was a noticeable decrease in indices of unhappiness for Daniel. Though the data was somewhat variable throughout the intervention, there was a clear change in the participants' indices of happiness and unhappiness. This increase in happiness was supported by the data, clinical observations of the participants and verbal reports from the parent. Katie reported that she was very pleased with Daniel's progress and excited that he now wants them (her and her husband) to interact and play with them. She also stated that her parents (Daniel's grandparents) saw a difference in Daniel. The grandparents reported: he seems happier, he looks at us now, and comes up to us. Katie, throughout the intervention, repeatedly stated how happy and excited Daniel was to come to 'school' (the FCP lab).

This study and the findings may be particularly important to the autism population. Unlike previous studies that primarily measured indices of happiness with adults with developmental disabilities, this was the first study that used these measures with a toddler with autism and with a parent. Autism is a pervasive disorder that is devastating to the child and his or her family. There is a bountiful list of research on parental stress levels for parents with children with autism, (e.g., Moes, 1995; Hastings & Johnson, 2001; Brookman-Frazee, 2004; Turnbull, 2004; Baker-Ericzen et al., 2005) which strongly suggests that parents with children with autism experience greater stress levels. One of the most significant goals parents have for their children is for them to be

more aware and for the parents to have a happy relationship with their child (Baker-Ericzen et al., 2005). A major stress factor for parents concerns the social impairments found in autism: the sense of a relationship that is lacking with their child, that is realized through interactions and the social impairments the child.

Social responding is a core deficit in autism and anything that shifts or improves dimensions of the child's favorable social responding is a great success. Any responses that are a component of a positive social relationship, such as positive affect or happiness, will enhance the relationship for the toddler and family. Social behavior is particularly important for the autism population, and this study provides validation of the approach suggested by Dillon and Carr (2007). Research has shown a correlation between high indices of happiness and increased social opportunities (Dillon & Carr, 2007 in press). This study provides a measure to assess the social behaviors of the child during parent and child interactions. The study showed that happiness measures can be assessed in early intervention programs for toddlers with autism to determine if the intervention is causing more or less happiness, unhappiness, or stress for the family.

The development and utilization of indices of happiness is a step towards the goal of enhancing relationships between toddlers and parents. If we can identify what causes these indices to increase or decrease it would be a major contribution to the field of autism and quality of life research. By observing indices of happiness in combination with other measures, such as social behavior throughout daily activities, we can ensure a greater quality of life for our participants. The present study and previous research support the use of indices of happiness to assess quality of life for the autism

population and their families. Happiness is a quality of life indicator, and much research has focused on increasing quality of life for families affected by autism (e.g., Turnbull, 2004; Marcus, Kunce, & Schopler 2005). Conducting this study fits in with the overarching goal of The Family Connections Project, which is to enhance the quality of relationships for families of toddlers with autism.

The social validity phase was designed to gather evaluations from unbiased, unfamiliar judges. They were shown clips of the child with autism during baseline and intervention and then shown clips of a typical developing child. With this information, then, one is able to assess what the judges would say about the ASD child's baseline and intervention clip in comparison to the NTD child's video clips, in addition to the video and formal questionnaire the experimenter took notes of the judges' verbal behavior after they completed watching the four video clips and completing the Judges' Survey. Generally, the judges rated Daniel and Katie's conditions as more favorable following intervention. Judge 1, the single 31 year old male, stated Katie seemed more interested than Shelia. Judge 2, the 55 year old mother, stated that if she would have watched the second clip (Post-Intervention for Daniel and Katie) before the first (Tape 1 for Patrick and Shelia), she would have graded Katie differently. Judge 2 also stated that Katie was much more relaxed than Shelia and even stated that Katie interacted much better with her child and there was a big difference between the mothers. Judge 2 stated that Katie seemed to be happier than Shelia, and that maybe Shelia had endured a harder life. Judge 3 stated that Patrick could not stay focused and that Daniel seemed to get aggravated more. Judge 3 also stated that Shelia kept grabbing Patrick and would not let him play; Judge 3 did not understand why she did not just let him play.

The judges talked about how Patrick was running around a bunch and could not stay still in the first clip they watched. This could be a reason why the judges rated that Patrick's Favorable Conditions improved. Because, in Tape 1, Patrick was running around sampling toys and in Tape 2 he was sitting with his mom mostly blowing bubbles and reading a book. This was Patrick's first time to be in the FCP playroom and in Tape 1 he was exploring his surroundings. During Tape 2 he had been in the playroom for a while and was more comfortable.

It was quite interesting how differently the three judges rated the clips. Judge 1 was a much more reserved rater. Judge 2 tended to rate high overall but there was more changes in her ratings. Judge 3 rated more similar to Judge 2 than Judge 1. It could be that the judges rated differently because of age, history (e.g., being a parent), or even gender. Variations in judges responding and the limited samples make conclusions difficult.

. Overall, Katie's responding on the parent survey improved slightly after intervention. She rated that some situations remained stressful for her and in other situations; she was less stressed and happier. While it was clear that some situations improved, it would probably be foolish to assume a short term parent training program could reduce all stress for parents with a child with a pervasive developmental disorder such as autism. One thing that could have been a factor in the participant's overall responding could be that there was a potentially distressing change in their family composition that was reported on the 17th intervention session.

How is this Study Similar and Different to Previous Research?

This study is similar to previous research in the fact that it takes directly observable measures of happiness and unhappiness indices with a population that is unable to self report on such events. Similar measures were used in this study. It differs from previous research in the fact that it was conducted with a different population. Previous research mainly assessed adults with profound multiple disabilities, however, this study was, to the investigators' knowledge, the only study that assessed indices of happiness with toddlers with autism and their parent. Though using similar measures, this study extends previous work by applying the observation and analysis to an intervention program for parents and their toddlers with autism. This study also differed because there was a controlled comparison parent-child dyad used for social validity measures. This study had judges rate the intervention participants by using a scale as with previous research but also showed the judges a controlled comparison parent-child dyad.

How Do the Indices Inform Understanding of Treatment?

When we see indices of happiness and unhappiness increase or decrease, what does this indicate? For example, it appeared that at the onset of each new skill, the parent was learning to teach, the child and parent's indices of happiness decreased and then increased as the skills were mastered by the parent and child. However, sometimes indices of happiness may be a function of setting events or variables outside the purview of the intervention itself. While these variables are frequently outside the control of the interventionist, indices may alert the practitioner that something has changed and that accommodations may be in order. This would suggest the need to

develop a decision making algorithm regarding changes in indices. By developing a decision making algorithm it will assist clinicians in making decisions based on the target behaviors and indices of happiness and unhappiness because other outside variables can affect the indices of happiness and unhappiness for the client and a more systematic way of ruling those variables out needs to be developed.

What are Reasonable Levels and Outcomes of Happiness and Unhappiness Indicators?

Because this type of research is very new to the field, we have no benchmarks for happiness and unhappiness levels. It is clear that children with autism are quite different from typically developing children. Parents typically understand their children are happy or enjoying an activity by their smiles, laughter, and engagement. This should be an indicator of happiness and enjoyment for children with autism as well, despite their social impairments. We should aim high and measure what is socially important to the family, which seems to be the quality of their relationship with their child and their child's happiness. We may be able to identify benchmarks of happiness and unhappiness by observing typical children interacting with their parents. The next step is to compare these findings to observations of children with autism and their parents and to develop reasonable goals for happiness and unhappiness. These benchmarks, can serve as a feedback loop for interventionists about the outcomes of their treatment.

In a short term parent training program, we have to look at where we are starting from and where we expect to end up. We can only do so much in this amount of time. Because autism is a pervasive disorder and affects the child socially, any increase in happiness would be an improvement. Although, we cannot expect to change the

parent's stress levels and happiness levels completely during a short term intervention, we can do what is possible in an attempt to increase these levels and the quality of life for our clients. Benchmarks would aid our progress.

Limitations

While the results of this study suggest increases in happiness and favorable responding in multiple areas for Katie and Daniel there are however, several issues and limitations within this study that need qualifications and further investigation.

There were fluctuations in the happiness indices across all conditions. This is one aspect of the study that we would like to investigate further. The variability could have been a function of: new goal responses being introduced (e.g., when a new goal was taught to the parent and then the parent began to teach the goal to the child, responding tended to decrease, and the harder the goal [e.g., Vocal Requests] the greater the initial variability in responding), the parent sampling reinforcers for the child (e.g., the parent was taught to make sure she had a reinforcer before beginning a teaching opportunity and this varied daily), particular types of reinforcers used during the sessions (e.g., food is consumed more rapidly than toys; there is more movement when a child is playing with a ball than when a child is playing with a shape sorter), and/or other family personal situations going on outside of the intervention program (e.g., relative visiting, sickness, marital stress, pregnancy, financial difficulties). All of these things could be reasons for the variability seen in the data.

Another limitation of the study involved the filming. Because the study was conducted with a toddler and toddlers are active, a limitation was the fact that only one

video camera was used. The child or parent's face was not always in view of the camera. Because the study was conducted in a small room, it would have interrupted the assessment sessions if the videographer tried to follow the participants while they were interacting. In particular, the video limitations affected recording of parent and child smiles. For child smiles towards the end of intervention during the video assessments for more than half of the 10 minute assessment sessions the child's face was not visible, due to camera limitations, and the small room. This may have been even more true towards the end of the intervention because, as an effect of the intervention, the child was sitting and engaging with toys much longer. In the beginning of intervention, the child was less engaged with toys and with the parent and ran around the room more. This affected recording of parent smiles as well. Also, another factor that affected scoring was that the parent wore a hat a few days during intervention which made it difficult for the data collectors to see her face. Parent and child smiles were scored with the sound off; the data collectors were instructed to only score a smile if they could see the participants' entire face. Observers had to see and be sure of a complete smile. At times, the parent and child were turned away from the video and laughing, but these instances were not scored. The only behavior scored was complete smiles, if the data collectors were positive they saw a smile. Also, this particular child tended to look down and shake his hands when he smiled, so this made it difficult to score this data. Habituation for the parent and child may have affected the data but this is not likely because the baseline sessions lasted approximately 4 weeks. The home assessment sessions data supported consistent patterns of isolation and solitary play so this rules out the habituation affect for the parent and child.

Finally, this study was conducted with only one parent child dyad. If there were more participants in the study, our conclusions would be stronger. This was a pilot study. It was the first time we had assessed these particular outcomes and collateral measures. The results however, are encouraging in terms of benefits in treatment decision making and quality of life.

We as behavior analysts need to be open to measures such as indices of happiness and address these types of outcomes or collateral effects of interventions. This can assist us in producing meaningful changes for our clients and in addressing socially important issues valued by our society. If this type of research is pursued with a variety of populations, especially the autism population, the contributions for enhancing quality of life for people with developmental disabilities such as autism may be increased greatly.

By doing this, we will be following Wolf's advice that he gave in his seminal article in 1978. He stated that we should become more concerned with behaviors that are most important to people even if it presents us with a complex task. He also stated, "After all, as an applied science of human behavior, we supposedly were dedicated to helping people become better able to achieve their reinforcers." (p.206). Measuring indices of happiness assists people in their pursuit of happiness.

By taking an alternative perspective, such as measuring indices of happiness and unhappiness in intervention programs, it would combine our values and societies values about meaningful outcomes which might lead to the discovery and use of additional approaches to interventions. With this we could drastically increase the

quality of life and happiness for people with autism, developmental disabilities, and their families.

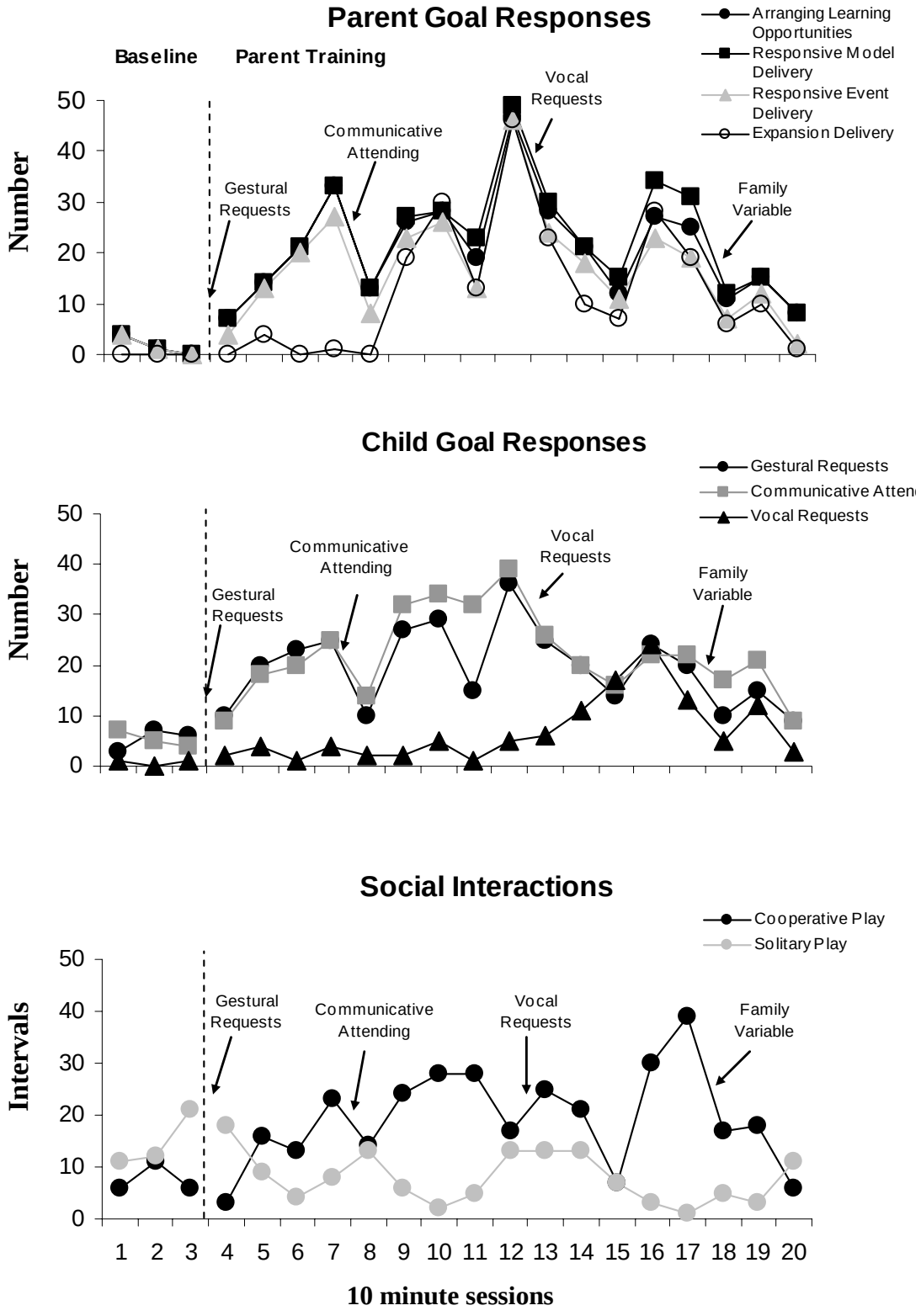


Figure 1. Targeted intervention goal responses for Katie and Daniel.

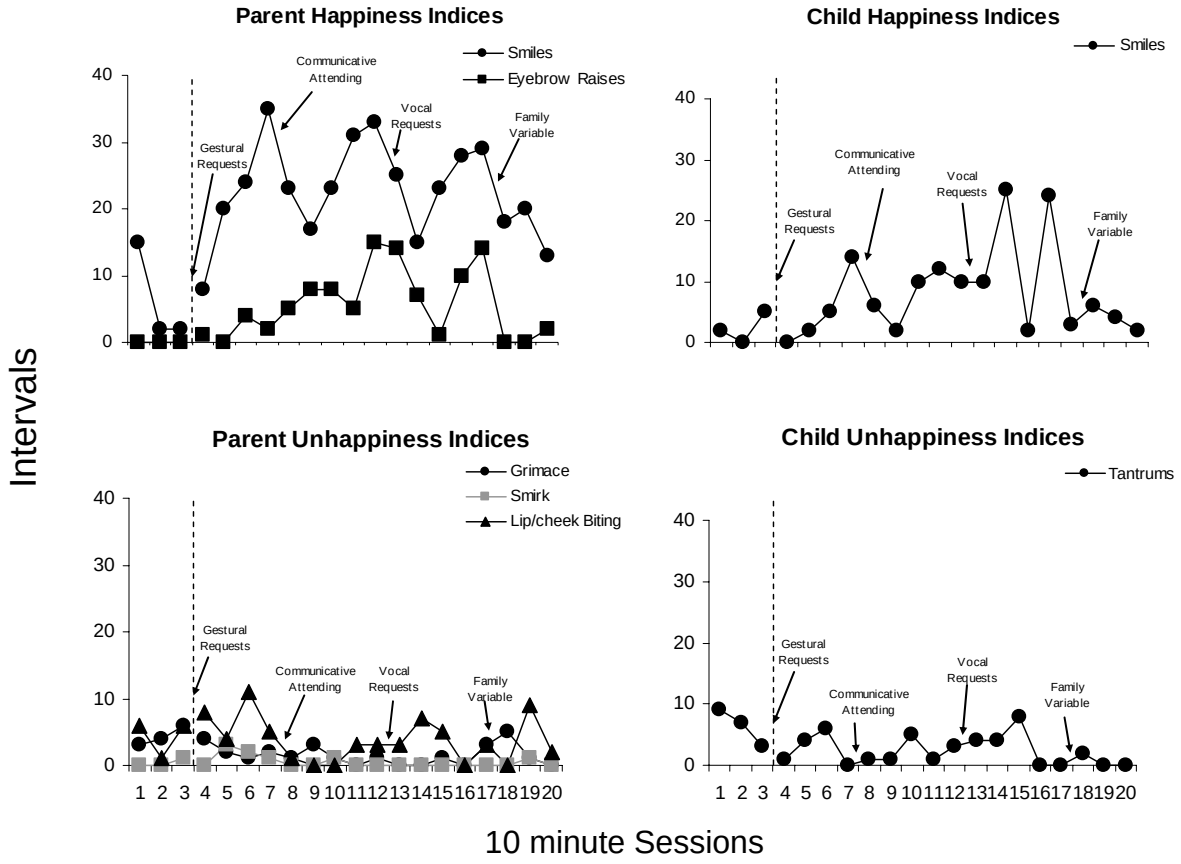


Figure 2. Collateral indices of happiness and unhappiness for Katie and Daniel.

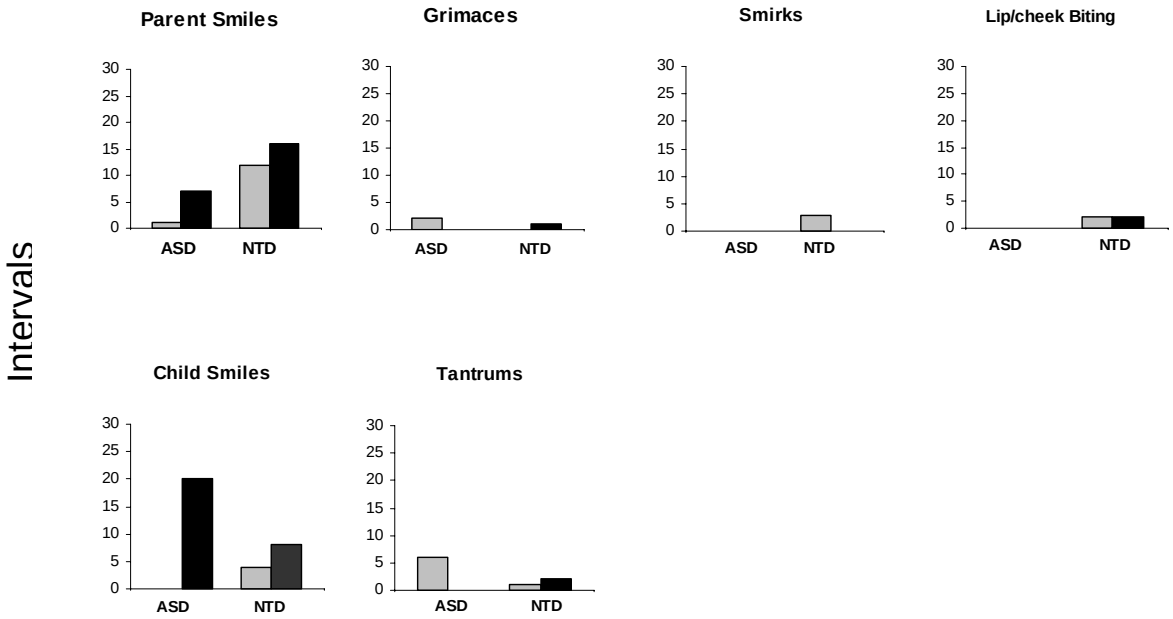


Figure 3: Direct measures of 4 clips viewed by judges for Katie and Shelia's behaviors (top) and for Daniel and Patrick's behaviors (bottom).

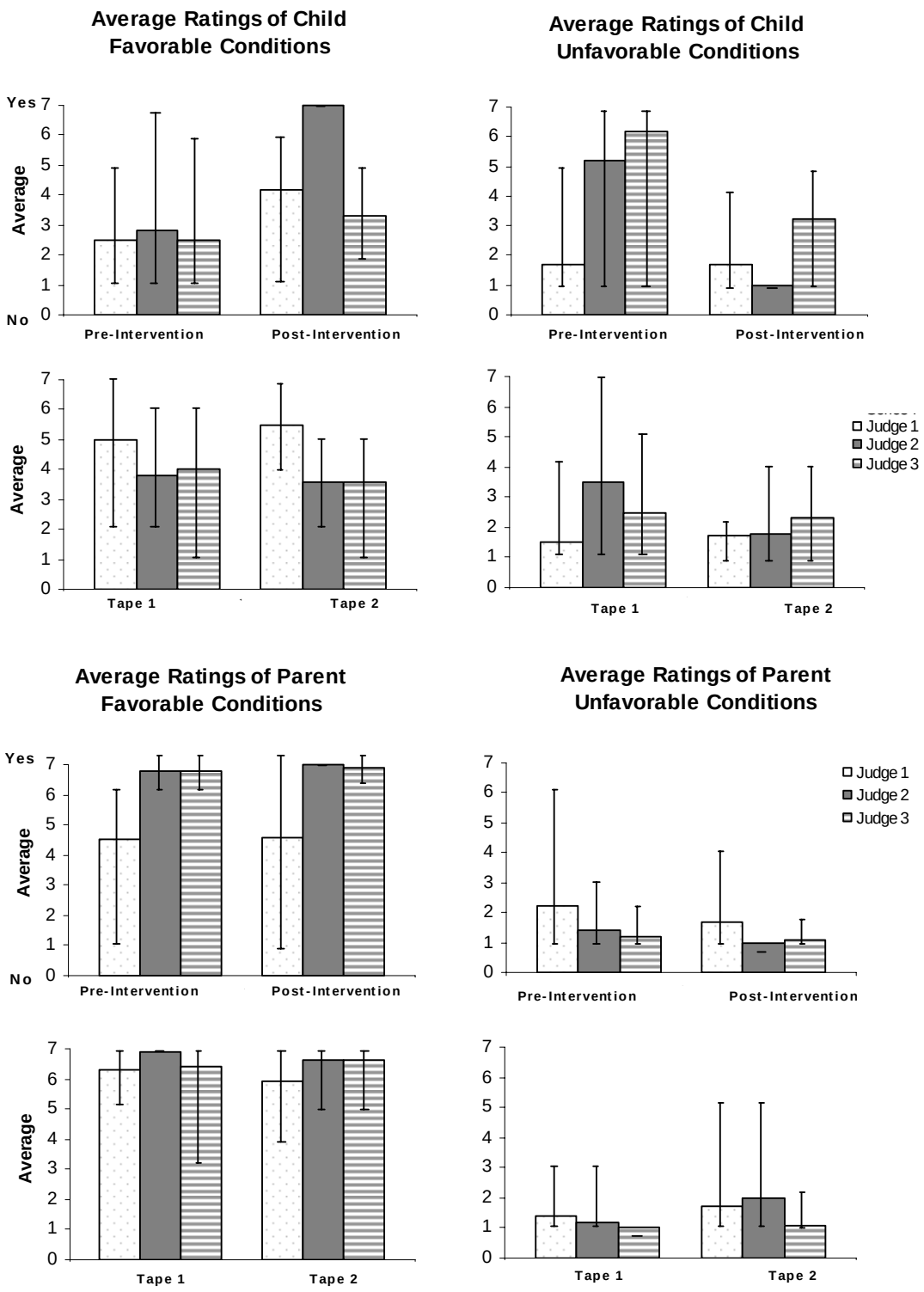


Figure 4. Averaged judges ratings. Top 4 graphs, average ratings of Child Favorable Conditions (left) and Child Unfavorable Conditions (right). Bottom 4 graphs, average ratings of Parent

Table 1

Scores for Each Judge for Daniel and Patrick's Favorable Conditions

(YES) 1 2 3 4 5 6 7 (N0) not sure not applicable

	ASD				**CONTROL**		
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 1				**Judge 1**			
Asked				**Asked**			
Interested?	3	5	**better**	Interested?	6	6	no change
Happy?	not sure	not sure	no change	Happy?	7	5	worse
Calm?	2	6	**better**	Calm?	5	7	**better**
Focused?	1	4	**better**	Focused?	2	4	**better**
Attached to mom?	5	5	no change	Attached to mom?	4	6	**better**
Enjoyed the toys?	2	5	**better**	Enjoyed the toys?	6	5	worse
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 2				**Judge 2**			
Asked				**Asked**			
Interested?	2	7	**better**	Interested?	3	4	**better**
Happy?	1	7	**better**	Happy?	6	5	worse
Calm?	2	7	**better**	Calm?	2	3	**better**
Focused?	3	7	**better**	Focused?	2	2	no change
Attached to mom?	7	7	no change	Attached to mom?	5	5	no change
Enjoyed the toys?	2	5	**better**	Enjoyed the toys?	5	3	worse
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 3				**Judge 3**			
Asked				**Asked**			
Interested?	3	3	no change	Interested?	5	4	worse
Happy?	1	4	**better**	Happy?	6	5	worse
Calm?	1	5	**better**	Calm?	6	6	no change
Focused?	1	2	**better**	Focused?	1	1	no change
Attached to mom?	6	2	worse	Attached to mom?	2	2	no change
Enjoyed the toys?	1	4	**better**	Enjoyed the toys?	4	4	no change

Table 2

Scores for Each Judge for Daniel and Patrick's Unfavorable Conditions

(YES) 1 2 3 4 5 6 7 (N0) not sure not applicable

	ASD				**CONTROL**		
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 1				**Judge 1**			
Asked				**Asked**			
Bored?	not sure	4	?	Bored?	1	1	no change
Unhappy?	not sure	not sure	no change	Unhappy?	1	2	worse
Frustrated?	5	2	**better**	Frustrated?	1	2	worse
Stressed?	5	2	**better**	Stressed?	not applicable	1	?
Confused?	not sure	not sure	no change	Confused?	2	2	no change
Bored with toys?	not sure	2	?	Bored with toys?	4	2	**better**
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 2				**Judge 2**			
Asked				**Asked**			
Bored?	2	1	**better**	Bored?	7	4	**better**
Unhappy?	7	1	**better**	Unhappy?	1	3	worse
Frustrated?	7	1	**better**	Frustrated?	3	1	**better**
Stressed?	7	1	**better**	Stressed?	2	1	**better**
Confused?	1	1	no change	Confused?	1	1	no change
Bored with toys?	7	1	**better**	Bored with toys?	7	2	**better**
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 3				**Judge 3**			
Asked				**Asked**			
Bored?	5	5	no change	Bored?	3	2	**better**
Unhappy?	6	3	**better**	Unhappy?	1	2	worse
Frustrated?	7	1	**better**	Frustrated?	1	1	no change
Stressed?	6	1	**better**	Stressed?	1	1	no change
Confused?	6	5	**better**	Confused?	5	4	**better**
Bored with toys?	7	4	**better**	Bored with toys?	4	4	no change

Table 3

Scores for Each Judge for Katie and Sheila's Favorable Conditions, with Indication of No Change, Change for the Better, Change for the Worse

	ASD				CONTROL		
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 1				**Judge 1**			
Asked				**Asked**			
Interested?	6	7	**better**	Interested?	5	7	**better**
Happy?	not sure	not sure	no change	Happy?	5	6	**better**
Calm?	6	6	no change	Calm?	6	4	worse
Focused?	6	4	worse	Focused?	7	6	worse
Attached to child?	6	6	no change	Attached to child?	7	6	worse
Encouraging?	4	7	**better**	Encouraging?	6	6	no change
Supportive?	5	6	**better**	Supportive?	7	6	worse
Optimistic?	3	5	**better**	Optimistic?	7	6	worse
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 2				**Judge 2**			
Asked				**Asked**			
Interested?	7	7	no change	Interested?	7	7	no change
Happy?	6	7	**better**	Happy?	6	5	worse
Calm?	6	7	**better**	Calm?	7	7	no change
Focused?	7	7	no change	Focused?	7	7	no change
Attached to child?	7	7	no change	Attached to child?	7	6	worse
Encouraging?	7	7	no change	Encouraging?	7	7	no change
Supportive?	7	7	no change	Supportive?	7	7	no change
Optimistic?	7	7	no change	Optimistic?	7	7	no change
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 3				**Judge 3**			
Asked				**Asked**			
Interested?	7	7	no change	Interested?	7	7	no change
Happy?	6	6	no change	Happy?	6	6	no change
Calm?	7	7	no change	Calm?	7	7	no change
Focused?	7	7	no change	Focused?	3	5	**better**
Attached to child?	7	7	no change	Attached to child?	7	7	no change
Encouraging?	7	7	no change	Encouraging?	7	7	no change
Supportive?	7	7	no change	Supportive?	7	7	no change
Optimistic?	6	7	**better**	Optimistic?	7	7	no change

Table 4

Scores for Each Judge for Katie and Shelia's Unfavorable Conditions

(YES) 1 2 3 4 5 6 7 (N0) not sure not applicable

	ASD				**CONTROL**		
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 1				**Judge 1**			
Asked				**Asked**			
Bored?	2	1	**better**	Bored?	3	1	**better**
Unhappy?	not sure	not sure	no change	Unhappy?	1	2	**better**
Stressed?	6	4	**better**	Stressed?	2	5	**better**
Frustrated?	6	2	**better**	Frustrated?	2	2	no change
Confused?	2	1	**better**	Confused?	1	1	no change
Avoiding child?	1	1	no change	Avoiding child?	1	1	no change
Discouraging?	1	2	worse	Discouraging?	1	1	no change
Nagging?	1	2	worse	Nagging?	1	1	no change
Pessimistic?	1	2	worse	Pessimistic?	1	1	no change
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 2				**Judge 2**			
Asked				**Asked**			
Bored?	3	1	**better**	Bored?	1	2	worse
Unhappy?	1	1	no change	Unhappy?	1	5	worse
Stressed?	2	1	**better**	Stressed?	3	4	worse
Frustrated?	2	1	**better**	Frustrated?	1	2	worse
Confused?	1	1	no change	Confused?	1	1	no change
Avoiding child?	1	1	no change	Avoiding child?	1	1	no change
Discouraging?	1	1	no change	Discouraging?	1	1	no change
Nagging?	1	1	no change	Nagging?	1	1	no change
Pessimistic?	1	1	no change	Pessimistic?	1	1	no change
	Pre	**Post**	***Change***		**Tape 1**	**Tape 2**	***Change***
Judge 3				**Judge 3**			
Asked				**Asked**			
Bored?	2	1	**better**	Bored?	1	1	no change
Unhappy?	2	2	no change	Unhappy?	1	1	no change
Stressed?	1	1	no change	Stressed?	1	1	no change
Frustrated?	1	1	no change	Frustrated?	1	1	no change
Confused?	1	1	no change	Confused?	3	2	**better**
Avoiding child?	1	1	no change	Avoiding child?	1	1	no change
Discouraging?	1	1	no change	Discouraging?	1	1	no change
Nagging?	1	1	no change	Nagging?	1	1	no change
Pessimistic?	1	1	no change	Pessimistic?	1	1	no change

Table 5

Parental Interview with Selected Results

Questions	Pre-Intervention	Post-Intervention
Generally, what makes you feel happy in relation to your child?	The way he loves hugs, snuggles now kisses us in his own way.	The way he loves us. His hugs and now sometimes kisses. The way he wants us to be with him.
Generally, what makes you feel stressed in relation to your child?	When he wakes up and gets so upset or angry and we don't know why. When he won't sit to eat dinner or in restaurants. Doesn't want to sleep. Kicks.	He just can't verbally communicate what he wants or needs and its very frustrating for him and stressful for us. His eating is also stressful.

Please tell us about these activities in relation to happiness and/or stressfulness. Add any information that you feel might be important in developing short and long term goals.

Questions	Pre-Intervention	Post-Intervention
Teaching your child a skill	Sometimes stressful because he doesn't want to be instructed most of the time.	Can be stressful when it comes to getting a vocalization for food. But we know it will get better.
Playing with your child	Pretty happy-likes to play but goes from one thing to another or gets frustrated.	We are very happy playing with Daniel as he is very happy to play with us.

APPENDIX A

COMPLETE RESPONSE DEFINITIONS FOR ALL PARENT AND CHILD INTERVENTION GOALS AND COLLATREAL MEASURES

INSTRUCTIONS AND CHOICES
(event recording)

Parent Instructions Given
The parent explicitly directs the child, vocally or nonvocally (gestures such as pointing) to engage or to stop engaging in a specified activity. Statements that would be considered questions are not scored as instructions. In addition, labeling actions that the child is already engaged in is not scored as an instruction.

Examples include but are not limited to: parent says “go over there;” parent says “come here;” parent says, “hey, go play with mommy;” parent says “give me that;” parent says “put in” while pointing to a hole in a shape sorter that the child is not engaged with; parent says, “Johnny, look.;” parent says, “Johnny come here;” parent says “Johnny;” parent saying “hey, go jump on the bed;” parent saying “come on Johnny;” parent saying “do this” while putting a shape in a shape sorter; parent says “lets play with something else;” parent says, “on top” while pointing to the top of a block; parent says “Johnny, look;” parent moves pointer finger to gesture to come here; parent points with pointer finger toward the door; parent puts both hands up with palms facing outward indicating to stop; parent saying “right here” while pointing to where a puzzle piece goes; parent saying “come on, give me five;” parent says “hey. hey. hey, over here (3 instructions given);

Non-examples include but are not limited to parent saying “hey, can you come here?;” parent saying “can you go over there for a second please?;” parent saying “you going to give me five?;” parent saying “yeah, give me five” while the child gives the parent five; parent saying “you going to run?;” parent saying “Johnny, can you look?;” parent saying “on top” while pointing to the top of a block while the child puts a bean on top of the block.

Child Instructions Followed
The child engages in or engages in an approximation to (makes an attempt) to do the activity or task specified in an instruction within 5 sec. of the instruction being given.

Examples include but are not limited to child putting a toy away following an instruction to do so; child walking over to individual following an instruction to do so; child saying “thank you” following an instruction to do so; child looking following an instruction to look.

Non-examples include but are not limited to: child saying “bye” following another individual saying “bye;” child handing an item to an individual following an instruction for the child to throw the item in the trash can; child putting a toy away following the phrase “honey, can you put this is the cupboard please?”

Parent Choices Offered

Parent offers the child choices (vocally or nonvocally) to pick rewards, and/or to do activities, and/or to go any places before, during, and after the teaching session. Each time the parent re-presents a choice given earlier in the assessment, another instance of choice offered is tallied.

> *Example* include but are not limited to: Parent holds up two items and says, "which one?;" Parent places two items on the floor and says, "pick one;" Parent says, "Do you want to play outside or in your room?;" parent holds up a cracker in one hand and juice in the other hand an presents them to the child (1 choice), the child walks away and when he returns, the parent picks the items back up and re-presents the cracker and the juice (1 choice).
>
> *Non-examples* include but are not limited to: Child picks between two toys, parent is on the other side of the room; Parent says, "lets go outside."

CHILD INTERVENTION GOALS

(event recording)

Gestural Request:

Non-vocal gestures (pictures/gestures/signs) directed to another that ask for an item, specify an action to be completed by other, request information, permission, or attention.

> *Examples* include but are not limited to: child moves pointer finger to gesture to come over here; child points with pointer finger toward the door; child puts both hands up with palms facing outward indication to stop; child reaches toward parent for an item with one hande.
>
> *Nonexamples* include but are not limited to: child says, “stop!” child grabs an item; child stomps feet on the ground while listening to music; when a parent withholds access to an item and child looks at the item (If child looks in the direction of the adult’s face, an instance of communicative eye contact is scored.)

Communicative Attending

The child’s head movement in the direction of an adult, following removal of a preferred item or to gain access to an inaccessible item or event. An inaccessible item or event may be the attention of the adult (i.e. the parent delivers attention in the form of vocalizations or item/event delivery following the child’s head movement in the direction of the parent, delivers a food item, activates a toy, grabs a toy off of a shelf, opens a cabinet that was locked, etc.)

> *Examples* include but are not limited to child looks at mom when she takes a toy away to fix it; child raises head towards mom while she is holding a piece of something he is playing with; child looks or turns head towards parent when a toy

is stuck or will not work properly; child looks up towards a shelf and then looks at mom while he points to a toy on the shelf; child looks up towards mom and raises both arms and says “up;” child looks up towards mom and reaches to her when she has juice in her hand; child head and eyes are in the direction of the toy when the parent holds it up right next to their face

Non-examples and non-observables include but are not limited to: child turns toward parent after removal of a preferred item but does not move head in the direction of the adults face; child turns body in the direction of an adult and walks past them; child head turns upwards but their back is turned and the direction of the head is turned away from the parent; child’s back is turned toward the parent while the parent holds a chip in their hand

Note: this is a generous definition because it is technologically difficult to observe glances and/or eye contact with video recording procedures

Vocal Request:

Spoken sounds, words, phrases, or complete sentences directed to another that ask for an item, directs another to engage in a specified activity, specifies an action to be completed by other, request information, permission, or attention. Onset begins with 1st sound and offset happens after 1 second has passed. Access to item/activity does not have to be delivered to be counted as a vocal request.

Examples include but are not limited to: saying "give" while hand extended towards toy; "more" while looking at candy in presence of teacher; "truck please" while reaching towards a truck peer is holding; "Look at me!" to parent; "Can you help?” while handing closed container to sibling; "Do this!" while demonstrating an action; "Now you say 'ready set go' " while in chase stance; child says “go over there;” child says “come here;” child says “give me that;” child makes a noise while demonstrating a non-vocal request such as communicative eye contact or reaching; child says “ba” while looking at the parent’s face who has just removed access to an item; child says “ba” while reaching towards the parent or an item the parent is controlling access to; child says “ba” while pulling parent’s arm toward an activity/item; child says “ba ba ba” while reaching for his bottle (1 occurrence); child says “ba ba ba” while reaching for his bottle (1 occurrence), 2 seconds pass and child says “ba ba ba” again while still reaching for his bottle (2nd occurrence).

Non-examples include but are not limited to child saying “NO!” when mom says it’s time to go (scored as vocal protest); child pounding fists on table after getting frustrated; child opening mouth wide while reaching for the juice in mom’s hand; child grabs an item in parent’s hand; child is spinning in circles while saying “ahhhh baaaaahhh” repeatedly; child says “duck” while pointing to a picture of a duck in a book;

SOCIAL PLAY

(interval recording)

Physical Proximity (X)

Child's body parts are within approximately 1 foot of other's body parts and child is not engaged in a similar activity. Not engaged can include engaging in another activity and/or looking away from the activity of another person.

Examples include but are not limited to: Child facing peer sitting two feet away, legs and arms within 12 inches of peer's legs; child is standing next to mom while he looks at a book and mom takes off her coat; child sitting at table eating snack and sibling at the same table reading a book; dad is holding a light toy in front of the child's face and the child is looking away.

Non-examples include but are not limited to: child is sitting on floor manipulating materials and peer walks behind child within 1 foot child sitting on floor playing a board game with a peer; child sitting at circle time listening to a story; child playing with a car toy on the floor and peers are playing with blocks behind him 2 ft. away.

Parallel Play (P)

Child is engaged in activities similar to another's, using common or similar materials and is within approximately 1 foot of other's body parts; no eye contact (looking at one another's faces and/or eyes) or social reciprocations occur. (initiations may occur)

Examples include but are not limited to: Children sitting around a train track; child pushes train back and forth on one side of track and other child walks a toy animal down train track; children both sitting on floor playing with blocks; parent is pushing car into toy garage and child is putting figurines into another car on the other side of the toy garage; parent is touching the same toy as the child and says, "yeah, it's a ball," but the child does not look in the direction of the parent or make any verbalizations to the parent and does not accept any initiations from the parent.

Non-examples include but are not limited to children sitting at table eating snack talking about what they will do at recess; child is sitting on the floor reading a book and peers are sitting next to him playing with cars; child and peers are playing with cars while child has back to peers.

Cooperative Play (C)

Child is engaged in an organized play activity and exchanges, initiations, reciprocations, or interactions occur within that activity or theme.

Examples include but are not limited to: Children sitting around a train track; child pushes train back and forth on one side of track and hands a train to peer who takes it; children push a train back and forth to each other; child is pushing a train, peer says "I like your Thomas"; parent puts dolls in bed and child says "He

is tired"; sibling hands child a dish of play food and says "here is your dinner", child takes the dish and pretends to eat.

Non-examples include but are not limited to: children sitting at table eating snack, not talking to one another; child gives coat to peer or adult while waiting to go outside; child and parent are both playing with trains at the table, not looking at one another or talking to one another.

Tantrums, Crying (T)

Child engages in vocalizations such as yells, whines, or screams which may or may not be accompanied by physically retreating or protesting.

Examples include but are not limited to: the child starts crying while playing with blocks; child vocalizes while protesting; child cries while trying to get past a parent.

Non-examples include but are not limited to: child is given a goldfish and he screams while throwing it back at the person; child gets excited and vocalizes when being tickled; child sings extremely loudly.

CHILD MOVEMENT

(event recording)

Approach

Anytime the child moves toward the teacher within 1 foot proximity.

Examples include but are not limited to: Moving toward the teacher within 1 foot proximity and requesting "bubbles;" child is already in 3 foot proximity to parent and then moves within 1 foot; child stands up and gives parent a hug.

Non-examples include but are not limited to: child moving toward the teacher within 3 feet proximity and saying, "hi;" child yelling at the parent from across the room; child passes by the parent on his way to run out the door.

Retreat

Anytime the child moves 2 or more feet away from the teacher following the presentation of an event. Score a retreat whether or not the parent follows the child after the retreat occurs.

Examples include but are not limited to: the child walks away from the parent when the parent offers the child a cookie; the child falls to the floor and crawls away when the parent approaches the child to pick him up; the child runs away from the parent when the parent hands him a block.

Non-examples include but are not limited to: child flops to the floor when the parent tries to pick him up (not 2 ft. away); child turns his back on the parent when she hands him a cookie; child walks away when the parent bends down to pick up a piece of paper that she dropped.

CHILD VERBAL BEHAVIOR

(event recording)

Request:

Spoken sounds, words, phrases, complete sentences, or non-vocal communication (pictures/gestures/signs) directed to another that ask for an item, directs another to engage in a specified activity, specifies an action to be completed by other, request information, permission, or attention. Onset begins with 1st sound or 1st movement and offset happens after 1 second has passed. Access to item/activity does not have to be delivered to be counted as a request.

Examples include but are not limited to: saying "give" while hand extended towards toy; "more" while looking at candy in presence of teacher; "truck please" while reaching towards a truck peer is holding; "Look at me!" to parent; "Can you help?" while handing closed container to sibling; "Do this!" while demonstrating an action; "Now you say 'ready set go' " while in chase stance; child says “go over there;” child says “come here;” child says “give me that;” child makes a noise while demonstrating a non-vocal request such as communicative eye contact or reaching; child says “ba” while looking at the parent’s face who has just removed access to an item; child says “ba” while reaching towards the parent or an item the parent is controlling access to; child says “ba” while pulling parent’s arm toward an activity/item; child says “ba ba ba” while reaching for his bottle (1 occurrence); child says “ba ba ba” while reaching for his bottle (1 occurrence), 2 seconds pass and child says “ba ba ba” again while still reaching for his bottle (2nd occurrence); or child moves pointer finger to gesture to come here; child points with pointer finger toward the door; child puts both hands up with palms facing outward indication to stop.

Nonexamples include but are not limited to: child says, “stop!” child grabs an item; child stomps feet on the ground while listening to music; saying “NO!” when mom says it’s time to go (scored as a protest); child pounding fists on table after getting frustrated; child opening mouth wide while reaching for the juice in mom’s hand; child grabs an item in parent’s hand; child is spinning in circles while saying “ahhhh baaaaahhh” repeatedly; child says “duck” while pointing to a picture of a duck in a book.

CHILD SMILES

(interval recording)

Child Smiles:
The child assumes a facial expression indicating pleasure, favor, or amusement, characterized by an upturning of the corners of the mouth.

Examples include but are not limited to: the child is playing with a car tuck and his facial expression changes by his eyes being raised and the turning of his lips; child is being tickled and giggles while corners of the mouth turn up; corners of child's mouth turn up as child is bounced on the trampoline;

Non-examples include but are not limited to: corners of the mouth turn up and eyes squint as child starts to cry; eyes close and turning of lips as a tantrum begins.

PARENT INTERACTION GOALS

(event recording)

Arranging Learning Opportunities (crea./capt.)
Teacher creates and/or capitalizing on a teaching opportunity by controlling or withholding access to events in the environment. The teacher creates or contrives a teaching opportunity by arranging the environment to promote the child's interest in events that the teacher can control access to.

Examples include but are not limited to: parent presenting events to the child while maintaining control; parent placing preferred materials out of reach; parent giving inadequate food/drink portions to the child; parent offering choices; parent setting up events that require assistance from the teacher; parent setting up a block or an aversive event; parent asking a question or making a comment.

Non-examples include but are not limited to: parent giving item to child non-contingently; parent giving entire container of desired food item to child (french fries, gold fish); all desired toys accessible to child; parent saying "hey honey do you want this?" and then giving it to him.

Responsive Model Delivery (M+/M-)
An appropriate adjustment of a model when compared with a previous model delivery.

Examples include but are not limited to; parent did not originally deliver a vocal model, but later delivers a vocal model, it would be considered a responsive model because it was adjusted compared to the first model (lack of vocal model); parent waits 2 seconds to delivery the next model when the previous model delivery occurred within 1 second of no response, it would be considered a responsive model because it was adjusted compared to the first model (shorter latency); parent slowly moves toy upward toward his face to model where the

child should look when working on eye contact; parent adjusts placement of a toy (moves it closer or farther away) when child stops crawling towards it

Non-examples include but are not limited to: parent didn't originally deliver a vocal model and later still doesn't deliver a vocal model; parent waits 2 seconds originally and later waits 2 seconds again; giving the same model--parent says "ball" and then says " ball" again without breaking the word down.

Responsive Consequence Delivery (C+/C-)
Teacher adjusts reinforcer delivery based on closer approximation, previous responding, and apparent desirability of event being delivered.

Examples include but are not limited to: child delivers bubbles when child says, “buh” following a vocal model “buh;” parent gives child juice following an instance of communicative eye contact when juice was removed.

Non-examples include but are not limited to: parent gives item to child when child turns away; parent gives item to child when child begins to whine/tantrum; child reaches for item, gives eye contact, and parent does not give item to child.

Expansion of Child Initiations (E+/E-):
Parent accepts a child initiation and then parent immediately adds/participates in and additional sequence within the same pattern, activity, or vocalization while delivering access. Delivering access includes providing materials/activity related to a vocalization that was inaccessible prior to the initiation; or providing continued access to materials/activity that the child was engaged with at the time a non-vocal play sequence was initiated.

Examples include but are not limited to the child saying “vvv” in the presence of the tv, mom says “video,” and provides access to a video. Child is looking at a book and touches a flap, mom lifts flap up and the child continues to look at the book.

Non-examples include but are not limited to the child saying “mmm” in the presence of the tv, mom says “video” but does not deliver access. Child is looking at a book, says “du,” mom says “duck” and the child continues to look at the book.

PARENT VERBAL BEHAVIOR
(event recording)

Encouraging Statements to Child
Parent offers support and creates optimism by vocally stating positive and encouraging comments to and/or about the child concerning the child’s progress toward specific goals, participation in activities, and regular routines.

Examples include but are not limited to: parent tells child, “you almost got it” while child crawls toward an object; parent tells the child, “keep going, you’re almost there” when the child is finishing a matching exercise.

Corrective Statements to Child

Parent gives a statement to the child to change behaviors or indicates behavior was incorrect by vocally stating negative comments and discouraging statements to and/or about the child concerning the child’s progress toward specific goals, participation in activities, and regular routines.

Examples include but are not limited to: child climbs on top of the table and parent state, “no, you need to get down now;” child is beginning to fuss and parent says “be quiet.”

PARENT AFFECT

(interval recording)

Parent Smiles (S)

The parent assumes a facial expression indicating pleasure, favor, or amusement, characterized by an upturning of the corners of the mouth.

Examples include but are not limited to: the parent smiles and shows her teeth when she says, “great job playing with the balls!;” the parent laughs and smiles while playing tickles; the parent’s mouth turns upward while saying, “you did it!”

Non-examples include but are not limited to: the parent’s facial expression and voice tone look and sound content; parent watches child and it appears to be a pleasant interaction.

Parent Appropriate Touches (T)

Parent initiates or reciprocates physical contact with child for 1 or more seconds to encourage, support, or assist child.

Examples include but are not limited to; touching; patting; kissing; caressing; massaging; tickling, giving high fives; child gives mom a hug and mom scratches his back; child gives mom a hug and mom holds the hug for a few seconds; child asks to be picked up and mom picks him up; mom picks up child and holds him; mom takes child’s hands and helps him open a container.

Non-examples include but are not limited to: parent grabs the child’s hand and pulls him toward the door; parent hits the outside of the child’s hand when he reaches to turn on the video; child puts hands on moms stomach; child grabs mom’s hand while she is holding a cracker.

Grimace (G)

Parent assumes a facial expression indicating disapproval/dissatisfaction or disgust. Characterized by stretching of mouth backwards or forward (pucker of lips), crunching upward of cheeks and nose.

Examples include but are not limited to: the parent puckers lips outward while the child is playing alone; or the child is retreating from the parent; parent crunches her cheeks and nose upward when the child is not engaging with the parent.

Non-examples include but are not limited to: the parent making silly faces with the child; the parent crunches her face after a favorable event accompanied with a smile.

Eye Roll (E)

Parent rolls eyes by raising eye brows and diverting eyes from child, usually following an undesirable event.

Examples include but are not limited to: the parent tries to give the child a toy and the child retreats the parent then rolls her eyes.

Non-examples include but are not limited to: parent raises her eye brows in excitement when playing with the child.

Smirk (M)

Parent assumes a facial expression indicating un-sureness, self consciousness, doubting, characterized by an upturning of one side of the mouth, usually accompanied with a sigh, or "uh".

Examples include but are not limited to: parent while watching the child play with a toy gives a half smile and her eyebrows and eyes constrict inwards; parent is looking for materials and assumes a half smile facial expression; parent sighs with a half smile and raising of her eyebrows when child is retreating.

Non-examples include but are not limited to: parent while watching the child play gives a half smile but it is a smile of approval or contentment.

Lip/cheek biting

Parent assumes a facial expression indicating confusion or being puzzled characterized by lips being puckered and biting inside of cheek or biting bottom or top lip.

Examples include but are not limited to: parent is waiting on child to respond and bites her lips; parent is sitting while the child is playing alone and biting her lips; parent is looking for materials and biting the inside of her cheek.

Non-examples include but are not limited to: parent licking her lips; parent rubbing her lips together.

Eye/eyebrow raise

Parent assumes a facial expression indicating excitement, satisfaction, happiness characterized by lifting of eye brows and widening of eyes, usually accompanied with a smile or look of contentment.

Examples include but are not limited to: parent raises eyebrows when child looks at her; parent raises eyebrows and smiles while tickling the child.

Non-examples include but are not limited to: parent's eyebrows raises when giving a smirk or grimace; parent's eyebrows raise when asking a question.

SOCIAL CONNECTIONS

(interval recording)

Social Connections (SC) (Strsia & Shores, 1977; JP GCP Hart, 1986)

Any social response made by the parent or child that is reciprocated. A social connection is one or more successive turns between the child and parent. The actions of the parent and the child must take place within 5 sec of one another, with the exception of routine care (e.g. diapering) and mutual play (e.g. reading a book to child). Social responses and reciprocations include but are not limited to looking, gesturing, vocalizing, singing, patting, kissing, smiling, cuddling, handing materials, receiving materials.

Examples include but are not limited to the parent looks at the child while at the table playing with cars and the child looks up at the face of the parent; while sitting on floor next to each other playing with cause and effect toys the child looks up at the parent then back at the toy and the parent turns the toy on; child and parent are sliding objects across the floor and child looks up at parent and parent says, “here comes another one!;” parent is helping the child jump on the trampoline and the child is laughing; parent pats child on back and child turns head toward the parent; child looks toward a toy and parent begins to play with the toy.

Non-examples include but are not limited to the child is in corner playing with the cars and parent is at table 4 ft away playing with cars and the child looks at the parent but parent does not respond in any way to the child; child and parent are sitting next to each other playing with two different activities and the child looks at parent but parent does not respond; while sitting next to each other playing with the beads the child looks at the door when he hears a noise and parent just continues to manipulate the materials; while watching a movie, the parent looks at child and child does not look at the parent.

Joint Attention: Child points or looks at a toy, object, or event and turns to the parent, teacher, sibling or peer, makes eye contact, then immediately looks or points again at the toy, object, or event. An object of event can include people, activities, sounds, etc.

Examples include but are not limited to: the child looking at blocks, then turning and making eye contact with the teacher and immediately looking again at the blocks; the child watches the door shut, looks and makes eye contact with mom and then looks back at the door.

Non-examples include but are not limited to: child playing with toy looks up at teacher but does not make eye contact, and then looks back at the toy; child looks at object, makes eye contact with teacher but then does not look back at object.

APPENDIX B

INTEROBSERVER AGREEMENT TABLE: PARENT AND CHILD INTERVENTION GOAL RESPONSES AND COLLATERAL MEASURES

Interobserver Agreement

Intervention Measures

Parent Goal Responses		Child Goal Responses	
Opportunity Arrangement	98.10%	Gestural Requests	80.80%
Responsive Model Delivery	97.30%	Communicative Attending	88.00%
Responsive Event Delivery	95.00%	Vocal Requests	89.40%
Expansion Delivery	93.10%		

Collateral Measures

Social Interactions	
Solitary Play	O 94.7%
	N 96.89%
Cooperative Play	O 83.5%
	N 98.1%

O= % of agreement on occurrence
N= % of agreement on nonoccurrence

Parent		Child	
Smiles	O 88.2%	Smiles	O 89%
	N 99.0%		N 96%
Grimaces	O 88%	Tantrums	O 87.5%
	N 99.3%		N 99.8%
Smirks	O 90%		
	N 99.7%		
Lip/cheek Biting	O 94.9%		
	N 99.6%		

APPENDIX C

PARENT INTERVIEW FORM, PARENT'S RESPONSES PRE AND POST INTERVENTION

Parental ☺ Interview

Child's Name:_____ **Date:**_____

Feelings of stress or happiness can be looked at as flags for environmental conditions that are important to consider. The following information will be taken into account when designing the IFSP. Please be as descriptive as possible.

Generally, what makes you feel happy in relation to your child?

Generally, what makes you feel stressed in relation to your child?

Can you tell us about your families leisure activities (see child preference inventory)

Parents alone

Parents independently

As a family

Please tell us about these activities in relation to your happiness and/or stressfulness. Please add any information that you feel might be important in developing short and long term goals.

mealtimes

preparing for an outing

going to the park

going to a swimming pool

routines in the community (e.g. grocery store, shopping, etc.)

medical check up and treatment procedures

teaching your child a skill

playing with your child

social time with immediate family (e.g., lounging, conversations, games)

social time with extended family (e.g. dinner at grandmas, parties, holidays)

social time with neighbors, colleagues, friends

attending spiritual or religious events

Parental Interview

Can you tell us about your family's leisure activities

Questions	Pre-Intervention	Post-Intervention
Parents alone	None :(	Small amount of time at night or during his naps on weekends. We try to watch a movie if we can on weekends.
Parents independently	Mom-reading, exercise at gym dad- non :(	Mom-when he naps, TV book or computer. Dad-during the week nothing. Weekend-same as mom.
As a family	Swimming, walking, park	Park and restaurant
Please tell us about these activities in relation to happiness and/or stressfulness. Add any information that you feel might be important in developing short & long term goals.		
Mealtimes	Happy-when he tries hamburger stressful-he doesn't want to try anything or sit & eat throws everything on the ground	Stressful at times but has gotten much better at restaurants.
Preparing for an outing	He pretty much likes to go so its pretty happy experience	Not too bad.
Going to the park	Happiness	Daniels happiest at the park. Sometimes hard to get him off the swing.
Going to the swimming pool	Happiness	Daniel loves to swim in "oudoor" pools.
Routines in the community (e.g. grocery store, shopping, etc.)	Wants to run!	He is okay but doesn't have to much patience with shopping so it can become stressful.
Medical check up and treatment procedures	Stressful. Hates it! Screams & Cries.	Bad! Stressful!

Questions	Pre-Intervention	Post-Intervention
Social time with immediate family (e.g., lounging, conversations, games)	Very good!	It goes fine if he has his own space to retreat to and if other children aren't on top of him.
Social time with extended family (e.g., dinner at grandmas, parties, holidays)	Not to good. Would rather not be bothered by them. Not good with sleeping away from home.	The stimulation can be a bit much.
Social time with neighbors, colleagues, friends	Looks at them but not to much interaction with them.	Same so we usually don't do to much of that because he always wants to leave.
Attending spiritual or religious events	Want to go to church but haven't because of Daniel's behavior.	Haven't tried with the exception of last Christmas when he ran everywhere. This year I'm sure he will just want to leave.

APPENDIX D

JUDGES SURVEY FORM, JUDGES BACKGROUND AND EXPERIENCE QUESTIONNAIRE

Tape:_____ Judge:___ Evaluation Date:_____

After watching the five minute clip please fill out the rating scale completely. Circle one number for each question the best you can. Each question is rated 7 (yes) to 1(no)if you are not sure circle not sure and if the question is not applicable circle not applicable. If you have any additional comments about the clip please write them beside the question or at the bottom of the sheet. Thank you for you assistance with this study.

Is this child…	**yes**						**no**			**Comments**
interested	7	6	5	4	3	2	1	not sure	not applicable	
bored	7	6	5	4	3	2	1	not sure	not applicable	
happy	7	6	5	4	3	2	1	not sure	not applicable	
unhappy	7	6	5	4	3	2	1	not sure	not applicable	
frustrated	7	6	5	4	3	2	1	not sure	not applicable	
stressed	7	6	5	4	3	2	1	not sure	not applicable	
calm	7	6	5	4	3	2	1	not sure	not applicable	
confused	7	6	5	4	3	2	1	not sure	not applicable	
focused	7	6	5	4	3	2	1	not sure	not applicable	
attached to his mom	7	6	5	4	3	2	1	not sure	not applicable	
enjoyed the toys	7	6	5	4	3	2	1	not sure	not applicable	
bored with the toys	7	6	5	4	3	2	1	not sure	not applicable	
Is this parent…										
interested	7	6	5	4	3	2	1	not sure	not applicable	
bored	7	6	5	4	3	2	1	not sure	not applicable	
happy	7	6	5	4	3	2	1	not sure	not applicable	
unhappy	7	6	5	4	3	2	1	not sure	not applicable	
stressed	7	6	5	4	3	2	1	not sure	not applicable	
calm	7	6	5	4	3	2	1	not sure	not applicable	
frustrated	7	6	5	4	3	2	1	not sure	not applicable	
confused	7	6	5	4	3	2	1	not sure	not applicable	
focused	7	6	5	4	3	2	1	not sure	not applicable	
attached to her child	7	6	5	4	3	2	1	not sure	not applicable	
avoiding her child	7	6	5	4	3	2	1	not sure	not applicable	
encouraging	7	6	5	4	3	2	1	not sure	not applicable	
discouraging	7	6	5	4	3	2	1	not sure	not applicable	
nagging	7	6	5	4	3	2	1	not sure	not applicable	
supportive	7	6	5	4	3	2	1	not sure	not applicable	
optimistic	7	6	5	4	3	2	1	not sure	not applicable	
pessimistic	7	6	5	4	3	2	1	not sure	not applicable	

Judge's Background and Experience Questionnaire

Judge #:_____ **Age:** _____

Please circle all that apply:

Gender: male female

Status: married single divorced

mother father Age of Child: _____ **Gender:** male female

_____ male female

_____ male female

Please complete the following questions.

1. What is your experience with toddlers? (ex: parent, grandparent, teacher, etc.)

2. Are you currently a parent or primary caregiver for a toddler?

3. What is your experience with children diagnosed with autism spectrum disorder?

4. How often are you currently around toddlers (ages 1-4)? What is the toddler's relation to you?

daily weekly monthly yearly never

5. Please list any additional information about your past, present, or future experience with toddlers?

APPENDIX E

FAMILY CONNECTIONS PROJECT'S IFSP SCOPE AND SEQUENCE AND MISSION

Family Connections Project

North Texas Autism Project, Department of Behavior Analysis

University of North Texas

IFSP Scope and Sequence Toddler Monitoring & Planning Guide*

Overarching master goal: To increase responsivity, enjoyment and benefit from the social environment

Early Interests and Activities	*master goal: enjoys playing with a wide range of activities alone & with others*						
sampling	scanning	touching	manipulating	request help	request demonstrations		
selection	gaze	grab, reach	point	vocal	in absence of event		
manipulation	simple	functional	short durations	long durations	pretend w/ play objects	pretend w/out play objects	
diversity	rate w/in class of presenting selections			rate w/in classes of similar		rate w/in classes of different selections	
Early Communication	*master goal: communicates own likes, dislikes, interests; responds to communications of others*						
functions	signal	requests	protests	directives	comments	descriptions	information exchanges
eye contact	gaze	access	supported joint attention		duration	persistence	coordinated joint attention
gestures	movement	diversity	rate	reach, point	block, shake	point, clap	
vocalizations	babble	diversity	rate	attempts	approximations	words	phrases
responsivity	smiles	follows high, neutral preference requests			gives information		follows low preference requests
Early Social	*master goal: enjoys sharing activities with others & develops attachments to widening circle of people*						
reciprocity	interests access	w/ imitations	w/ objects	w/ vocals	w/ physicals	w/ toys	in simple conversations
motor imitation	diversity & rate	approximations	large movements	w/ toys	small movements	w/ toys	sequences generalized
vocal imitation	diversity	rate	single sounds	approximations	words	phrases	
Early Movement	*master goal: able to control own access to physical environment*						
locomotion	sit	crawl	pulls up	walks	trots	runs	
fine motor	hand to hand	pick ups	pincer grasp	accommodates	stacks and drops	utensils	fits, tosses
Early Problem Solving	*master goal: able to encounter novel & varying conditions with success & comfort*						
cause-effect	experiment w/ objects		experiment w/ social reactions			persistence w/ experimentation	
flexibility	accommodates changes without distress; makes transitions without distress and with eagerness						
agility	switches from one activity to another; engages in activities in different ways; learning rate increases with successive exposures						

Probable Sequences (must be individualized and must work with splinter skills) ---------->

* references: Greenwood, Carta & Walker; Mundy & Crowson; Lewy & Dawson; Sears & Sears; Leaf & McEachin

The Family Connections Project

The primary mission of the Family Connections Project (FCP) is to enhance the quality of relationships within families who have toddlers with autism. Parents are taught to identify and arrange opportunities to interact with their children in ways that will increase motivation and social responsivity. Initial training involves identifying high preference events and arranging those events to optimize functional interactions, social engagement and play skills. By teaching parents to create and arrange motivating conditions, children are able to learn increasingly complex skills throughout everyday family routines and activities. Subsequent parent training emphasizes the selection of goals that will optimize quality of family life, procedures to teach desired goals, and, finally, techniques for monitoring treatment progress.

North Texas Autism Project

The North Texas Autism Project (NTAP) is a service-learning project in the Department of Behavior Analysis in the College of Public Affairs and Community Service at the University of North Texas. The Department of Behavior Analysis offers degree programs in Behavior Analysis and specialty training in the behavioral interventions in autism. NTAP was created in response to a growing local and national need for qualified providers of behavior analytic services for children with autism. ***The mission of NTAP is to provide applied community service-learning experiences for graduate students in the Department of Behavior Analysis, to provide direct interventions, and to produce pragmatic research. The Family Connections Project is one of the primary service-learning activities of NTAP.***

FCP Eligibility

Parents and their toddlers with autism or PDD are eligible for services. Toddlers should be between 12 to 18 months at the onset of services. A majority of the parent training will take place on the campus of UNT in the Family Connections Playroom.

FCP Training Opportunities

In order to receive the full benefit of the training program, parents are asked to participate in one full training sequence (one hour training sessions, two times a week for 10 weeks: a total of 20 training sessions). Shahla Rosales, Ph.D., BCBA, a behavior analyst with over 25 years of experience working with young children and their families supervises all training sequences. Experienced professionals with Bachelor's degrees that are pursuing advanced training in Applied Behavior Analysis conduct individual sessions with parents and their toddlers.

FCP Training Format

The first three to four sessions involve a thorough assessment of child skills and parental goals in each of the FCP skill areas. Assessments take place at home and in the FCP playroom. During this time, the parent trainer will also spend time working directly with the toddler in order to build rapport and to determine optimal teaching procedures. Following the assessment period, each of the training sessions will include instructions, demonstrations and practice of optimal teaching procedures. As the families make progress, intervention will focus on problem solving and integrating new skills into the ecology of the home. Parents will be provided with practical feedback and have ample opportunity to have input into the training process.

FCP Fees for Services

There is a $2140 fee for each 20 session training sequence. Parents may contract additional 6 session sequences if qualified interventionists are available.

FCP Applications

Dr. S. Rosales, SRosales@pacs.unt.edu
Department of Behavior Analysis,
PO Box 310919,
Denton Texas, 76205

APPENDIX F

FAMILY CONNECTIONS PROJECT'S KEY TEACHING STRATEGIES: DANCE

OUTLINE

The Family Connections Project

The Teaching D.A.N.C.E.

This is a teaching strategy that incorporates the principles of operant conditioning in a developmentally suitable way for a toddler and his or her parents. The parent takes advantage of the toddler's interests to establish communication "dialogues" and build new skills. The keys are to start with the child's current interests and skills and to gently shape new and more complex ways of responding to the social and physical environment.

Decide

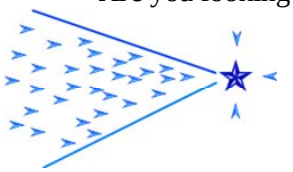
Is this a good moment for a teaching interaction?
Is your child alert? Interested in the presented activities?
Do you have time? Are you free from other distractions?
What skill will you teach?

Arrange

Did you sample activities and events: offer choices until you see a "spark"?
Did you arrange the desired events so you that you can control access?
Did you level yourself to your child's position?
Did you state the goal?
Did you wait for small movements towards the larger goals?

Now!

Are you looking for responses on the goal band?



Are you responding *immediately* by presenting the desired activity or event?
Are you pairing the event with delighted, brief and *specific praise*?
Are you *adjusting your responding (models and event delivery)*:
Is what you are doing effective?
Is your child happy?
Is your child moving in the right direction?
Should you continue? Should you change?

Count

Have you determined a time period to sample progress?
Did you define the desired responses –what you want to teach?
Did you count occurrences of each desired response?
Did you chart the responses in real time in a standardized format?

Enjoy!

Are you having fun?
Are you keeping the DANCE short and sweet?
Are you shifting to other activities while your child is still happy?
Are you alternating teaching and play activities?

APPPENDIX G

JUDGES' BACKGROUND AND EXPERIENCE

Question	Judge 1	Judge 2	Judge 3
Gender	Male	Female	Male
Status	Single No children	Married Mother	Married Father
Age & Gender of child		31 male	31 male
Please complete the following questions **What is your experience with toddlers? (ex. Parent, grandparent, teacher, etc.)**	No real experience	Parent	Parent
Are you currently a parent or primary caregiver for a toddler?	No	No	No
What is your experience with children diagnosed with autism spectrum disorder?	Minimal experience, Had a student (11-13 years old) with aspergers.	None	None
How often are you currently around toddlers (ages 1-4)? What is the toddlers relation to you?	Never	Weekly in passing at church Church members & family	Never
Please list any additional information about your past, present, or future experience with toddlers?		Have 1 child, raised 2 children Past experience with family	I raised 1 child, have past experience have a few nieces and nephews

APPENDIX H

SELECTED RESPONSES FROM PARENT SURVEY

Parental Interview

Selected Results

Questions	Pre-Intervention	Post-Intervention
Generally, what makes you feel happy in relation to your child?	The way he loves hugs, snuggles now kisses us in his own way.	The way he loves us. His hugs and now sometimes kisses. The way he wants us to be with him.
Generally, what makes you feel stressed in relation to your child?	When he wakes up and gets so upset or angry and we don't know why. When he won't sit to eat dinner or in restaurants. Doesn't want to sleep. Kicks.	He just can't verbally communicate what he wants or needs and its very frustrating for him and stressful for us. His eating is also stressful.

Please tell us about these activities in relation to happiness and/or stressfulness. Add any information that you feel might be important in developing short and long term goals.

Questions	Pre-Intervention	Post-Intervention
Teaching your child a skill	Sometimes stressful because he doesn't want to be instructed most of the time.	Can be stressful when it comes to getting a vocalization for food. But we know it will get better.
Playing with your child	Pretty happy-likes to play but goes from one thing to another or gets frustrated.	We are very happy playing with Daniel as he is very happy to play with us.

REFERENCES

Ala'i-Rosales, S., Laino, K. S., Broome, J. L., Besner, A., Rosales-Ruiz, J., et al. (2007) The Family Connections Project's outcome study. In preparation.

Alpert, C. L. & Kaiser, A. P. (1992). Training parents as milieu language teachers. *Journal of Early Intervention, 16,* 31-52.

Baker, B. L., Landen, S. J., & Kashima, K. J. (1991). Effects of parent training on families of children with mental retardation: Increased burden or generalized benefit? *American Journal on Mental Retardation. 96,* 127-136.

Baker, J., M., Brookman-Frazee, L., & Stahmer, A. (2005). Stress levels and adaptability in parents of toddlers with and without autism spectrum disorder. *Research & Practice for Persons with Severe Disabilities, 30*(4), 194-204.

Brookman-Frazee, L. (2004). Using parent/clinician partnerships parent education programs for children with autism. *Journal of Positive Behavior Interventions, 6*(4), 195-213.

Chadsey-Rusch, J., Karlan, G. R., Riva, M. T., & Rusch, F. R. (1984). Competitive employment: Teaching conversational skills to adults who are mentally retarded. *Mental Retardation, 22,* 218-225.

Cooke, T. P., & Apollini, T. (1976). Developing positive social-emotional behaviors: A study of training and generalization effects. *Journal of Applied Behavior Analysis, 9,* 65-78.

Dalai Lama & Cutler, H. C. (1998). *The art of happiness: A handbook for living.* New York: Riverhead Books.

Davis, P.K., Young, A., Cherry, H., Dahman, D., & Rehfeldt, R.A. (2004). Increasing the happiness of individuals with profound multiple disabilities: Replication and extension. *Journal of Applied Behavior Analysis, 37,* 531-534.

Dillon, C. M. & Carr, J. E. (2007). Assessing indices of happiness and unhappiness in individuals with developmental disabilities: a review. In press*.* 1-28.

Evans, M., J., & Scott, R., J. (1989). Defining meaningful outcomes for persons with profound disabilities. *Chapter 4,* 83-105.

Favell, J. E., Realon, R. E., & Sutton, K. A. (1996). Measuring and increasing the happiness of people with profound mental retardation and physical handicaps. *Behavioral Interventions, 37,* 531-534.

Felce, D., & Perry, J. (1996). Assessment of quality of life. In R. L. Schalock (Ed.), *Quality of life. Volume 1: Conceptualization and measurement.* Washington, DC: American Association on Mental Retardation.

Feldman, M. A., & Werner, S. (2002). Collateral effects of behavioral parent training on families of children with developmental disabilities and behavioral disorders. *Behavioral Interventions, 17,* 75-83.

Green, C. W., Gardner, S. M., & Reid, D. H. (1997). Increasing indices of happiness among people with profound multiple disabilities: a program replication and component analysis. *Journal of Applied Behavior Analysis, 30,* 217-228.

Green, C. W., & Reid, D. H. (1999a). A behavioral approach to identifying sources of happiness and unhappiness among individuals with profound multiple disabilities. *Behavior Modification, 23*(2), 280-293.

Green, C. W., & Reid, D. H., (1999b). Reducing indices of unhappiness among individuals with profound multiple disabilities during therapeutic exercise routines. *Journal of Applied Behavior Analysis, 32,* 137-147.

Green, C. W., & Reid, D.H., (1996). Defining, validating, and increasing indices of happiness among people with profound multiple disabilities. *Journal of Applied Behavior Analysis, 29,* 67-78.

Green, C.W., Reid, D.H., Canipe, V.S., & Gardener, S.M. (1991). A comprehensive evaluation of reinforcer identification process for persons with profound multiple handicaps. *Journal of Applied Behavior Analysis, 24,* 537-552.

Green, C.W., Reid, D.H., Rollyson, J.H., Passante, S.C. (2005). An enriched teaching program for reducing resistance and indices of unhappiness among individuals with profound multiple disabilities. *Journal of Applied Behavior Analysis, 38,* 221-233.

Green, C.W., Reid, D.H., White, L.K., Halford, R.C., Brittain, D.P., & Gardner, S.M. (1988). Identifying reinforcers for persons with profound handicaps: Staff opinion versus systematic assessments of preferences. *Journal of Applied Behavior Analysis, 21,* 31-43.

Grove, D.N., Dalke, B.A., Fredericks, H.D., & Crowley, R.F. (1975). Establishing appropriate head positioning with mentally and physically handicapped children. *Behavioral Engineering, 3,* 53-59.

Hanley, G.P., Piazza, C.C., Fisher, W.W., Contrucci, S.A., & Maglieri, K.A. (1997). Evaluation of client preference for function-based treatment packages. *Journal of Applied Behavior Analysis, 30,* 459-473.

Hart, B., & Risley, T. R. (1968). Establishing the use of descriptive adjectives in the spontaneous speech of disadvantaged preschool children. *Journal of Applied Behavior Analysis, 1,* 109-120.

Hastings, R. P., & Johnson, E. (2001). Stress in UK families conducting home-based behavioral intervention for their young child with autism. *Journal of Autism and Development Disorders, 31,* 327-336.

Haskett, J., & Hollar, W.D. (1978). Sensory reinforcement and contingency awareness of profoundly retarded children. *American Journal of Mental Deficiency, 83*, 60-68.

Homme, L. E. (1970). *In Proceedings: early childhood intervention research conference.* Institute III: Exceptional Children and Adults. The University of South Florida.

Ivancic, M.T., & Bailey, J.S. (1996). Current limits to reinforcer identification for some persons with profound multiple disabilities. *Research in Developmental Disabilities, 17,* 77-92.

Ivancic, M.T., Barrett, G.T., Simonow, A., & Kimberly, A. (1997). A replication to increase happiness indices among some people with profound multiple disabilities. *Research in Developmental Disabilities, 18,* 79-89.

Jones, S.S., & Hong, H. (2005). How some infant smiles get made. *Infant Behavior and Development, 28,* 194-205.

Koegel, R. L, Bimbela, A., & Schreibman, L. (1996). Collateral effects of two parent training programs on family interactions. *Journal of Autism and Developmental Disorders, 26,* 347-359.

Koegel, R. L., Glahn, T. J., & Nieminen, G. S. (1987). Generalization of parent-training results. *Journal of Applied Behavior Analysis, 11,* 95-109.

Koegel, R. L., Schreibman, L. Loos, L. M., Dirlich-Wilhelm, H., & Dunlap, G., Robbins, F. R., & Plienis, A. J. (1992).Consistent stress profiles in mothers of children with autism. *Journal of Autism and Developmental Disorders, 22,* 205-216.

Lancioni, G.E., O'Reilly, M.F., Campodonico, F., & Mantini, M. (2002). Increasing indices of happiness and positive engagement in persons with profound multiple disabilities. *Journal of Developmental and Physical Disabilities, 14,* 231-237.

Lancioni, G.E., O'Reilly, M.F., Singh, N.N., Campodonico, F., Marziani, M., & Oliva, D. (2004). A microswitch program to foster simple foot and leg movements in adult wheelchair users with multiple disabilities. *Cognitive Behavior Therapy, 33,* 137-142.

Lancioni, G.E., O'Reilly, M.F., Singh, N.N., Oliva, D., Campodonico, F., & Groeneweg, J. (2003). Stimulation and microswitch-based programs for enhancing indices of happiness: A maintenance assessment. *Behavioral Interventions, 18,* 53-61.

Lancioni, G.E., O'Reilly, M.F., Singh, N.N., Oliva, D., & Groeneweg, J. (2002). Impact of stimulation versus microswitch-based programs on indices of happiness of

people with profound multiple disabilities. *Research in Developmental Disabilities, 23,* 149-160.

Lancioni, G.E., O'Reilly, M.F., Singh, N.N., Oliva, D., Piazzolla, G., & Groeneweg, J. (2004). Assessing influence of stimulation on mood and aberrant behavior of persons with multiple disabilities during brief treadmill sessions. *Perceptual and Motor Skills, 99,* 931-936.

Lancioni, G.E., Singh, N.N., O'Reilly, M.F., Campodonico, F., Oliva, D., & Groeneweg, J. (2004). Effects of automatically delivered stimulation on persons with multiple disabilities during their use of a stationary bicycle. *Perceptual and Motor Skills, 98,* 1363-1367.

Lancioni, G.E., Singh, N.N., O'Reilly, M.F., Campodonico, F., Piazzolla, G., Scalini, L., et al. (2005). Impact of favorite stimuli automatically delivered on step responses of persons with multiple disabilities during their use of walker devices. *Research in Developmental Disabilities, 26,* 71-76.

Lancioni, G.E., Singh, N.N., O'Reilly, M.F., Oliva, D., Campodonico, F., & Groeneweg, J. (2004). Use of simple exercise tools by students with multiple disabilities: Impact of automatically delivered stimulation on activity level and mood. *Journal of Developmental and Physical Disabilities, 16,* 171-178.

Lancioni, G.E., Singh, N.N., O'Reilly, M.F., Oliva, D., Campodonico, F., & Groeneweg, J. (2003). Assessing the effects of automatically delivered stimulation on the use of simple exercise tools by students with multiple disabilities. *Research in Developmental Disabilities, 24,* 475-483.

Lancioni, G.E., Singh, N.N., O'Reilly, M.F., Piazzolla, G., Pidala, S., & Oliva, D. (2005). Wheelchair-bound persons with multiple disabilities learning to use simple foot-leg responses within a microswitch-based program. *Journal of Developmental and Physical Disabilities, 17,* 327-336.

Lindauer, S.E., DeLeon, I.G., & Fisher, W.W. (1999). Decreasing signs of negative affect and correlated self-injury in an individual with mental retardation and mood disturbances. *Journal of Applied Behavior Analysis, 32,* 103-106.

Logan, K.R., Jacobs, H.A., Gast, D.L., Murray, A.S., Daino, K., & Skala, C. (1998). The impact of typical peers on the perceived happiness of students with profound multiple disabilities. *Journal of the Association for Persons with Severe Handicaps, 23,* 309-318.

Lovaas, O. I. (1987). Behavioral treatment and normal education and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology, 55,* 3-9.

Lutzker, J.R., Megson, D.A., Webb, M.E., & Dachman, R.S. (1985). Validating and training adult-child interaction skills to professionals and to parents indicated for

child abuse and neglect. *Journal of Childhood and Adolescent Psychotherapy, 2,* 9-104.

Marcus, M., L., Kunce, J., L., & Schopler, E. (2005). Working with families. In Volkmar, F. R., Paul, R., Klin, A., & Cohen, D. (Eds.), *Handbook of autism and pervasive developmental disorders* (3rd ed.). New Jersey: Wiley & Sons.

McGee, G.G., Krantz, P.J., & McClannahan, L.E. (1985). The facilitative effects of incidental teaching on preposition use by autistic children. *Journal of Applied Behavior Analysis, 18,* 17-31.

McLaughlin, D.M., & Carr, E.G. (2005). Quality of rapport as a setting event for problem behavior: assessment and intervention. *Journal of Positive Behavior Interventions, 7*(2), 68-91.

Meyer, L. H., & Evans, I. M. (1993). Science and practice in behavioral intervention: Meaningful outcomes, research validity, and usable knowledge. *Journal of the Association for Persons with Severe Handicaps, 18,* 224-234.

Meyer, L., & Janney, R. (1989). User-friendly measures of meaningful outcomes: Evaluating behavioral interventions. *JASH, 14*(4), 263-270.

Noonan, M.J. & McCormick (1993). *Early intervention in natural environments: Methods and procedures.* Pacific Grove, CA: Brooks/Cole Publishing Co.

O'Leary, K. D. & O'Leary, S. C. (1972). *Classroom management: The successful use of behavior modification.* New York: Pergamon Press.

Pace, G.M., Ivancic, M.T., Edwards, G.L., Iwata, B.A., & Page, T.A. (1985). Assessment of stimulus preference and reinforcer value with profoundly retarded individuals. *Journal of Applied Behavior Analysis, 18,* 249-255.

Plienis, A. J., Robbins, F. R., & Dunlap, G. (1988). Parent adjustment and family stress as factors in behavioral parent training for young autistic children. *Journal of the Multi-Handicapped Person, 1*(1), 31-52.

Porterfield, J., Blunden, R. & Blewitt, E. (1980). Improving environments for profoundly handicapped adults. *Behavior Modification, 4*(2), 225-241.

Quinn, J. M., Sherman, J. A., Sheldon, J. B., Quinn, L. M., & Harchik, A. E. (1992). Social validation of component behaviors of following instructions, accepting criticism, and negotiating. *Journal of Applied Behavior Analysis, 25,* 401-413.

Realon, R.E., Bligen, R.A., La Force, A., Helsel, W.J., & Goldman, V. (2002). The effects of the positive engagement program (PEP) on the behaviors of adults with profound cognitive and physical disabilities. *Behavioral Interventions, 17,* 1-13.

Realon, R.E., Favell, J.E., & Phillips, J.F. (1989). Adapted leisure materials versus standard leisure materials: Evaluating several aspects of programming for profoundly handicapped persons. *Education and Training in Mental Retardation, 24,* 168-177.

Reid, D.H., Green, C.W., & Parsons, M.B. (1998). A comparison of supported work versus center-based program services on selected outcomes for individuals with multiple severe disabilities. *Journal of the Association for Persons with Severe Handicaps, 23,* 69-76.

Reid, D.H., Phillips, J.F., & Green, C.W. (1991). Teaching persons with profound multiple handicaps: A review of the effects of behavioral research. *Journal of Applied Behavior Analysis, 24,* 319-336.

Robbins, F. R., Dunlap, G., & Pleinis, A. J. (1991). Family characteristics, family training, and the progress of young children with autism. *Journal of Community Psychology, 15,* 173-184.

Sailor, W., Gee, K., Goetz, L., & Graham, N. (1988). Progress in educating students with the most severe disabilities: Is there any? *Journal of the Association for Persons with Severe Handicaps, 13,* 87-99.

Schwartz, I.S., & Baer, D.M. (1991). Social validity assessments: Is current practice state of the art? *Journal of Applied Behavior Analysis, 24,* 189-204.

Singh, N.N., Lancioni, G.E., Winton, A.S.W., Wahler, R.G., & Singh, J. (2004). Mindful caregiving increases happiness among individuals with profound multiple disabilities. *Research in Developmental Disabilities, 25,* 207-218.

Thompson. J. A. K. (2004). *Aristotle's Nicomachean Ethics.* London: Penguin Classics.

Turnbull, A. P., & Turnbull, H. R. (2002). *Families, professionals, and exceptionality: Collaborating for empowerment* (4th ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.

Voeltz, L. M., & Evans, I. M. (1982). Behavioral interrelationships in child behavior therapy. *Behavioral Assessment, 4,* 131-165.

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11,* 203-214.

Yu, D.C.T., Spevack, S., Hiebert, R., Martin, T.L., Goodman, R., Martin, T.G. et al. (2002). Happiness indices among persons with profound and severe disabilities during leisure and work activities: A comparison. *Education and Training in Mental Retardation and Developmental Disabilities, 37,* 421-426.